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OLD SERIES, VOL. XI. } CONTINUATION OF THE BULLETIN OF THE NUTTALL ORNITHOLOGICAL CLUB { NEW SERIES, VOL. III

The Auk

A Quarterly Journal of Ornithology

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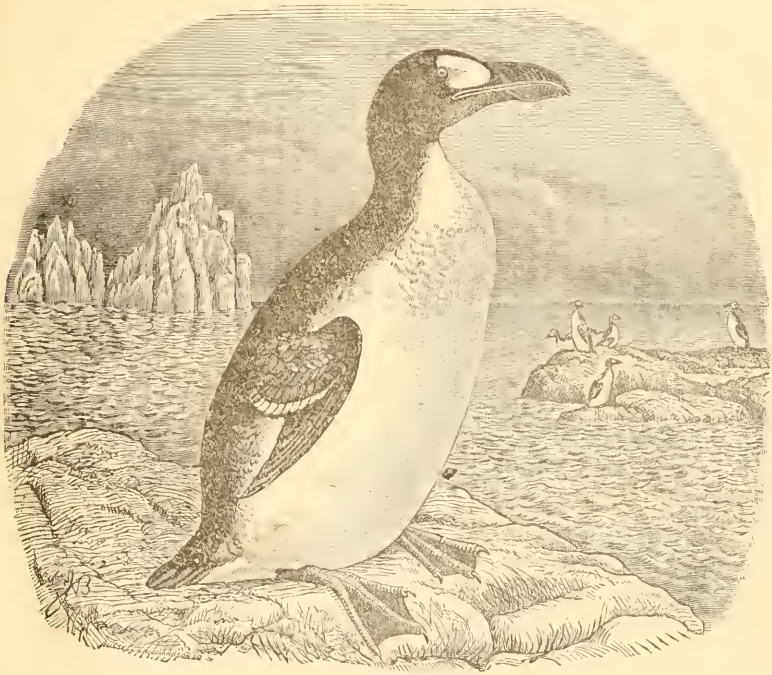

VOLUME III

PUBLISHED FOR
The American Ornithologists' Union

NEW YORK
L. S. FOSTER
1886

Printed by
W. H. Wheeler, 416 Harvard St.,
Cambridge, Mass.

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MILNE-EDWARDS, Prof. ALPHONSE, Rue Cuvier, 57, Paris..... 1883
NEWTON, Prof. ALFRED, University of Cambridge, England..... 1883
PARKER, Prof. WILLIAM KITCHEN, Crowland, Trinity Road, Upper Woting, London, S.W..... 1883
PELZELN, Dr. AUGUST VON, I. Schonlatemgasse, 13, Museum, I, Vienna..... 1883
SALVADORI, Prof. Count TOMMASO, Royal Zoöl. Museum, Turin, Italy..... 1883
SALVIN, OSBERT, Hawksford, Fernhurst, Haslemere, England.. 1883
SAUNDERS, HOWARD, 7 Radnor Place, Hyde Park, London, W..... 1884
SCLATER, Dr. PHILIP LUTLEY, 11 Hanover Sq., London, W..... 1883
*SCHLEGEL, Prof. Dr. HERMAN, Leyden, Holland..... 1883
SEEBOHM, HENRY, 6 Tenterden St., Hanover Sq., London, W..... 1884
SHARPE, RICHARD BOWDLER, British Museum, South Kensington, London, S. W..... 1883
TACZANOWSKI, Dr. W., University, Warsaw, Russia..... 1884
WALLACE, Prof. ALFRED RUSSEL, Nutwood Cottage, Frith Hill, Godalming, England..... 1883

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Date of Election.

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ANDERSON, Dr. JOHN, India Museum, Calcutta..... 1884
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BLASIUS, Dr. RUDOLF, Brunswick, Germany..... 1884
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DALGLEISH, JOHN J., 8 Athole Crescent, Edinburgh..... 1883.
DAVID, L'ABBÉ ARMAND, Rue de Sevres, 95, Paris..... 1883
DUBOIS, Dr. ALPHOSE, Museum Nat. History, Brussels..... 1884

*Deceased.

Dugès, Prof. Alfredo, Colegio del Estado, Guanajuanto, Mexico. 1884
Echt, Adolf Bachofen von, Vienna..... 1884
Fatio, Dr. Victor, Geneva, Switzerland..... 1884
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Girtanner, Dr. A., St. Galle, Switzerland..... 1884
Godman, F. du Cane, 10 Chandos Street, Cavendish Sq., London. 1883
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Haast, Dr. Julius von, Director Canterbury Museum, Christchurch, New Zealand..... 1884
Hargitt, Edward, Broadwater Lodge, Broadwater, Worthing, Sussex, England..... 1884
Harting, James Edward, 24 Lincoln's-Inn Fields, London..... 1883
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Holub, Dr. Emil, Vienna..... 1884
Homeyer, Dr. C. F. von, Stolp, Germany..... 1884
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Krüper, Dr. Theobald J., University Museum, Athens, Greece... 1884
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Madarász, Dr. Julius von, National Museum, Budapest, Hungary. 1884
Malmgren, Dr. A. J., University, Helsingfors, Finland..... 1884
Marschall, Graf A. F., Wallzeil 33, Vienna..... 1884
Menzbier, Dr. M., Moscow, Russia..... 1834
Meyer, Dr. A. B., Königl. Zool. Museum, Dresden..... 1884
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Oates, E. W., 6 Tenterden St., Hanover Sq., London..... 1884
Oustalet, Dr. Émile, Jardin des Plantes, 55 Rue de Buffon, Paris... 1883
Palmén, Prof. J. A., Helsingfors, Finland..... 1883
Philippi, Dr. R. A., Santiago, Chili..... 1884
Prejevalsky, Colonel N., Acad. of Science, St. Petersburg, Russia. 1884
Pryer, Harry, Yokohama, Japan..... 1883
Radde, Dr. Gustav Ferdinand, Tiflis, Russia..... 1884
Ramsay, E. P., Sydney, New South Wales, Australia..... 1884
Reichenow, Dr. Anton, Grossbeerenstrasse, 52, Berlin S. W..... 1884
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Scott, W. E. D., Tarpon Springs, Fla..... 1884
Selys-Longschamps, Baron Edmond de, Liége, Belgium..... 1884

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Stevenson, Henry, Unthanks Road, Norwich, England..... 1884
Thiel, Dr. Hjalmar, University of Upsala, Upsala, Sweden..... 1884
Tristram, Rev. Canon H. B., The College, Durham, England.... 1884
Tschusi zu Schmidhoffen, Count Victor Ritter von, near Hallein, Salzbury, Austro-Hungary..... 1884
Wharton, Henry T., 39 St. George's Road, Kilburn, London, N.W. 1883
Zeledon, Sr. Don José C., San José, Costa Rica..... 1884

THE AUK:

A QUARTERLY JOURNAL OF ORNITHOLOGY.

VOL. III. JANUARY, 1886. No. 1.

THE BIRDS OF THE WEST INDIES, INCLUDING THE BAHAMA ISLANDS, THE GREATER AND THE LESSER ANTILLES, EXCEPTING THE ISLANDS OF TOBAGO AND TRINIDAD.

BY CHARLES B. CORY.

THE following pages contain, as far as known, all the species which are found in the West India Islands. No descriptions are given of well known North American birds, and the references to such are mainly restricted to the citation of works and papers on West Indian Ornithology.

FAMILY TURDIDÆ.

GENUS Turdus LINN.

Turdus LINN. Syst. Nat. I, p. 291 (1766).

Turdus mustelinus GMEL.

Turdus mustelinus GMEL. Syst. Nat. I. p. 817 (1788).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 49 (1840).—GOSSE, Bds. Jam. p. 144 (1847) (Jamaica)?—GUNDL. J. f. O. 1855, p. 469 (Cuba); *ib.* 1872, p. 405 (Cuba).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).—ALBRECHT, J. f. O. 1862, p. 201 (Jamaica).—COUES, Bds. Colo. Vall. p. 28 (1878).—SEEBOHM, Cat. Bds. Brit. Mus. V, p. 196 (1881).—CORY, List Bds. W. I. p. 5 (1885).

Occasionally found in Cuba, and recorded from Jamaica, but its occurrence in the latter island is questioned.

Turdus fuscescens STEPH.

Turdus fuscescens STEPH. Shaw's Gen. Zöol. Bds. 1817, p. 182.—GUNDL. J. f. O. 1861, p. 324; *ib.* Repert. Fisico-Nat. Cuba, I, p. 288 (1865) (Cuba).—SEEBOHM, Cat. Bds. Brit. Mus. V, p. 203 (1881).—CORY, List Bds. W. I. p. 5 (1885).

Turdus minor LESS. D'Orb. in La Sagra's Hist. Nat. Cuba, Ois. p. 47 (1840).

Common in Cuba.

Turdus swainsoni CABAN.

Turdus swainsoni CAB. Tschudi's Fauna Peruana. 1844; *ib.* J. f. O. 1857, p. 241 (Cuba).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—GUNDL. J. f. O. 1861, p. 324; *ib.* 1872, p. 405 (Cuba).—COUES, Bds. Colo. Vall. p. 34 (1878).—CORY, List Bds. W. I. p. 5 (1885).

Accidental in Cuba.

Turdus aliciæ BAIRD.

Turdus aliciæ BD. CASS. & LAWR. Bds. N. Am. p. 217 (1858).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 229 (1865).—BD. BWR. & RIDGW. Hist. N. Am. Bds. I, p. 11 (1874).—SEEBOHM, Cat. Bds. Brit. Mus. V, p. 202 (1881).—CORY, Bds. Haiti & San Domingo, p. 17 (1885); *ib.* List Bds. W. I. p. 51 (1885).

Cuba and San-Domingo; not common.

GENUS Merula LEACH.

Merula LEACH, Cat. Brit. Mus. p. 20 (1816).

Merula jamaicensis (GMEL.).

Turdus jamaicensis GMEL. Syst. Nat. I, p. 809 (1788).—BP. Consp. I, p. 271 (1850).—SCL. P. Z. S. 1859, p. 327; *ib.* 1861, p. 70.—ALBRECHT, J. f. O. 1862, p. 191.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 292.—GRAY, Handl. Bds. I. p. 257 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 1 (1873).—SEEBOHM, Cat. Bds. Brit. Mus. V, p. 208 (1881).—A. & E. NEWTON, Handb. Jamaica, p. 105 (1881).

Merula jamaicensis GOSSE, Bds. Jam. p. 142 (1847).—DENNY, P. Z. S. (1847), p. 38.—CORY, List Bds. W. I. p. 5 (1885).

Turdus capucinus "HARTL," fide BP. Consp. I. p. 271 (1850).

Turdus leucophthalmus "HILL," fide BP. Consp. I, p. 271 (1850).

Turdus leroboulleti BP. Compt. Rend. XXXVIII, p. 3 (1854).

SP. CHAR. *Male.*—Chin, and a band on the lower part of the throat showing white; the rest of entire head and throat reddish brown; back brown, with a faint tinge of olive, becoming grayish on the rump; underparts grayish brown, becoming dull white on the abdomen; wings and tail dark brown.

The sexes are similar.

Length (skin), 8.50; wing, 4.50; tail, 3.50; tarsus, 1.25; bill, .70.

HABITAT. Jamaica.

Merula migratoria (LINN.).

Turdus migratorius LINN. Syst. Nat. I, p. 292 (1766).—BD. BWR. & RIDGW. Hist. N. Am. Bds. I, p. 25 (1874).—SEEBOHM, Cat. Bds. Brit. Mus. V, p. 220 (1881).

Planesticus migratorius GUNDL. J. f. O. 1872, p. 405.

Merula migratoria CORY, List Bds. W. I. p. 5 (1885).

Accidental in Cuba.

Merula aurantia (GMEL.).

Turdus aurantius GMEL. Syst. Nat. I, p. 832 (1788).—BP. Consp. I, p. 275 (1850).—SCL. P. Z. S. 1861, p. 70; *ib.* Cat. Am. Bds. p. 6 (1862).—ALBRECHT, J. f. O. 1862, p. 192.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 292.

Turdus leucogenus LATH. Ind. Orn. I, p. 341 (1790).—VIEILL. Nouv. Dict. XX, p. 254 (1818).

Merula saltator "HILL. Comp Jam. Alm. 1842."—GOSSE, Bds. Jam. p. 140 (1847).

Merula leucogenys GOSSE, Bds. Jam. p. 136 (1847).

Catharus aurantius BP. Compt. Rend. XXXVIII, p. 3 (1854).

Semimerula aurantia BAIRD, Rev. Am. Bds. p. 84 (1864).—A. & E. NEWTON, Handb. Jamaica, p. 105 (1881).

Mimocichla aurantia SCL. & SALV. Nom. Avium Neotr. p. 2 (1873).

Merula aurantia SEEBOHM, Cat. Bds. Brit. Mus. V, p. 247 (1881).—CORY, List Bds. W. I. p. 5 (1885).

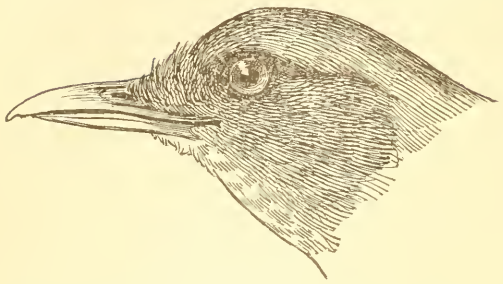
SP. CHAR. *Male:*—Top of head dark brown; chin white; abdomen dull white; the rest of plumage slaty brown; wings and tail dark brown; two of the greater wing-coverts next to the inner secondaries broadly edged with white, giving a noticeable white marking to the wing.

Female:—Appears to be similar to the male, but is perhaps somewhat paler. Some specimens do not seem to differ at all in coloration.

Length (skin), 9.50; wing, 5; tail, 4; tarsus, 1.80; bill, .85.

HABITAT. Jamaica.

Merula gymnophthalma (CABAN.).



Turdus gymnophthalmus CAB. Schomb. Reis. Guian. III. p. 665 (1848). — GRAY, Handl. Bds. I, p. 257 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 1 (1873).—SEEBOHM. Cat. Bds. Brit. Mus. V, p. 212 (1881).

Turdus gymnopsis "TEMM." fide BP. Consp. I. p. 272 (1850).

Turdus nudigenis LAFR. Rev. Zool. 1848, p. 4.—LEOT. Ois. Trinid. p. 20 (1866).

Turdus caribbæus LAWR. Ann. N. Y. Acad. Sci. I. p. 160 (1878); *ib.* Pr. U. S. Nat. Mus. I, p. 486 (1878).

Turdus gymnogenys SCL. & SALV. Ibis, 1879, p. 357.

Merula gymnophthalma CORY, List Bds. W. I. p. 5 (1885).

SP. CHAR. *Male:*—Above dull olive brown; underparts pale brown; throat pale, mottled with dull brown; belly pale, showing markings of dull white on the crissum; under wing-coverts pale rufous.

The sexes are similar.

Length (skin), 8.50; wing, 4.75; tail, 4; tarsus, 1.15.

HABITAT. Grenada, Trinidad, and Tobago.

Specimens taken in Grenada vary slightly in size and coloration from South American examples, but are apparently the same.

Merula nigrirostris (LAWR.).

Turdus nigrirostris LAWR. Ann. N. Y. Acad. Sci. I, p. 147 (1878).—LISTER, Ibis, 1880, p. 39.—SEEBOHM, Cat. Bds. Brit. Mus. V, p. 218 (1881).

Merula nigrirostris CORY, List Bds. W. I. p. 5 (1885).

"*Female*:—Front, crown, and occiput dark warm brown, each feather of the crown and occiput with a shaft-stripe of dull pale rufous; upper plumage reddish olivaceous brown, deeper in color on the upper part of the back and on the wing-coverts; the latter have their ends marked with small spots of bright rufous, which possibly may be an evidence of the example not being fully mature; the tail is of a dark warm brown, the shafts black; inner webs of quills blackish brown; the outer webs reddish brown, of the same color as the tail-feathers; the shafts are glossy black; under lining of wings clear cinnamon red; under plumage light brownish ash, with the middle of the abdomen and the crissum white; on the upper part of the breast a few feathers end with dark reddish brown, forming an irreg-

ular narrow band; the throat unfortunately is soiled with blood, but as well as I can judge, it has stripes colored like the breast, and the feathers edged with whitish; the thighs are dull rufous; the bill is large and strong, the upper mandible is black, the under also, but showing a brownish tinge; tarsi and toes dark brown."

The sexes are similar.

"Length (fresh), 9¼ in.; wing, 4½; tail, 3½; tarsus, 1¼; bill from front, ⅞." (LAWR. orig. descr.)

HABITAT. St. Vincent.

This species is allied to *M. fumigatus*, but is perfectly distinct. It has thus far only been taken in the island of St. Vincent.

GENUS **Mimocichla** SCL.

Mimocichla SCLATER, P. Z. S. 1859. p. 336.

Mimocichla rubripes (TEMM.).

Turdus rubripes TEMM. Pl. Col. II, p. 409 (1826).—VIG. Zool. Journ. III, p. 439 (1827).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 46 (1840).—GUNDL. Bost. Journ. Nat. Hist. VI, p. 318 (1852).

Mimus rubripes BP. Consp. I, p. 276 (1850).

Galeoscoptes rubripes CAB. Mus. Hein. I, p. 82 (1850).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).

Mimocichla rubripes SCL. Cat. Am. Bds. p. 6 (1862).—BAIRD, Rev. Am. Bds. p. 38 (1864).—GRAY, Handl. Bds. I, p. 263 (1869).—GUNDL. J. f. O. 1872, p. 406.—SCL. & SALV. Nom. Avium Neotr. p. 2 (1873).—SEEBOHM, Cat. Bds. Brit. Mus. V, p. 283 (1881).—CORY, List Bds. W. I. p. 5 (1885).

SP. CHAR. *Male:*—Upper plumage dark slaty gray; feathers on the head darker in the centre; lores and ear-coverts very dark brown; chin and lower sides of the cheeks white; throat black, the lower portion having the feathers margined with gray; breast and upper part of the belly and sides slate gray; lower part of the belly and thighs chestnut; under tail-coverts white; quills, secondaries, and wing-coverts black, edged with slate color; tail brownish black, the four outer feathers on each side tipped with white, some of the feathers showing gray at the base of the outer webs; bill brownish black.

The sexes are similar.

Length (skin), 10; wing, 4.40; tail, 4.20; tarsus, 1.45; bill, .90.

HABITAT. Cuba.

Mimocichla schistacea BAIRD.

Mimocichla schistacea BAIRD, Rev. Am. Bds. p. 37 (1864).—GRAY, Handl. Bds. I. p. 263 (1869).—GUNDL. J. f. O. 1872, p. 407.—CORY, List Bds. W. I. p. 5 (1885).

SP. CHAR.—General appearance of *M. rubripes*, but lacking the reddish on the belly, which is replaced by white; the crissum is also white; bill heavier than in *rubripes*; otherwise the two forms are alike.

Length, 10.50; wing, 5; tail, 5.10; tarsus, 1.50; bill, 1.20.

HABITAT. Eastern part of Cuba.

Dr. Gundlach (J. f. O., l. c.) considers this a good species, and says the eggs are smaller and more finely spotted than those of *M. rubripes*. Seebohm (Cat. Bds. Brit. Mus. V, p. 283), gives *M. schistacea* as a synonym of *M. rubripes*, but gives no reasons for so doing. Although it would be strange if two species of *Mimocichla* should be found to inhabit Cuba, yet, with our present knowledge of the two forms, *M. schistacea* must be considered distinct.

Mimocichla plumbea (LINN.).

Turdus plumbeus LINN. Syst. Nat. I, p. 294 (1766).—VIEILL. Ois. Am. Sept. II, p. 2, pl. 58.

Turdus ardosiaceus VIEILL. Ency. Méth. p. 646 (1823).

Galeoscoptes plumbea CAB. Mus. Hein. I. p. 82 (1850).—SALLÉ, P. Z. S. 1857, p 231.—SCL. P. Z. S. 1859, p. 337.

Mimocichla plumbeus BAIRD, Rev. Am. Bds. p. 36 (1864).—SCL. & SALV. Nom. Avium Neotr. p. 2 (1873).—CORY, Bds. Bahama I. p. 45, pl. 11 (1880); *ib.* List Bds. W. I. p. 5 (1885).

Turdus (Mimokitta) plumbeus BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 68 (1866).

Mimocitta plumbea NEWTON, Ibis, 1866, p. 121.

Mimokitta plumbeus GRAY, Handl. Bds. I, p. 263 (1869).

Mimocichla bryanti SEEBOHM, Cat. Bds. Brit. Mus. V, p. 280 (1881).

SP. CHAR. *Male:*—General plumage plumbeous; chin and small patch at base of lower mandible white; throat black; primaries and secondaries dark brown, except the first two, edged with slaty grey; tail very dark brown, almost black; the terminal third of the inner webs of the first two, and tips of first four feathers white; crissum plumbeous; legs and eyelids vermilion red; iris reddish brown.

Female:—Similar to the male, but appears to be slightly smaller. Cannot be distinguished otherwise than by dissection.

Length, 10.25; wing, 5; tail, 5; tarsus, 1; bill, 90.

HABITAT. Bahama Islands. Common at New Providence, Andros, and Abbacco.

Mimocichla ardesiaca (VIEILL.).

Turdus plumbeus LINN. Syst. Nat. I, p. 294 (1866).—VIEILL. Ois. Am. Sept. II, p. 2 (1807); *ib.* Nouv. Dict. Hist. Nat. XX, p. 242 (1818).

Turdus ardosiaceus VIEILL. Ency Méth. p. 646 (1823).—BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 92 (1866); *ib.* X, p. 25 (1866).

Mimus plumbeus GRAY, Gen. Bds. I, p. 221 (1844).—BP. Consp. I, p. 276 (1850).

Galeoscoptes plumbeus CAB. Mus. Hein. I, p. 82 (1850).—SALLÉ, P. Z. S. 1857, p. 231.

Mimocichla ardosiaca BAIRD, Rev. Am. Bds. p. 39 (1864).—GUNDL. J. f. O. 1878, p. 165; *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 171 (1878).

Turdus ardosiaceus var. *potoricensis* BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 93 (1866).

Mimokitta ardosiacea Gray, Handl. Bds. I, p. 263 (1869).

Mimokitta ardosiacea var. *portoricensis* GRAY, Handl. Bds. I, p. 263 (1869).

Mimocichla ardesiaca SCL. & SALV. Nom. Avium Neotr. p. 2 (1873). — SEEBOHM, Cat. Bds. Brit. Mus. V, p. 282 (1881).—CORY, Bull. Nutt. Orn. Club, VI. p. 151 (1881); *ib.* Bds. Haiti & San Domingo, p. 18 (1885); *ib.* List Bds. W. I. p. 5 (1885).—TRISTRAM, Ibis, 1884. p. 168.

SP. CHAR. *Male:*—General plumage plumbeous; a patch of black extending from below and in front of the eye to the base of the upper mandible; throat white, streaked heavily with black; top of head somewhat dotted with brown; underparts pale plumbeous, becoming white on the abdomen and crissum; primaries dark brown, the outer webs edged with plumbeous gray; same marking, but much broader, edging the secondaries; tail dark brown, the outer feathers broadly tipped with white, the white becoming less and less to the fourth, which is only narrowly touched; but the tail-marking varies in different specimens and seasons; bill, eyelids, and legs vermilion orange; iris reddish brown.

The sexes are similar.

Length, 10; wing, 5.20; tail, 4.70; tarsus, 1.40; bill, .75.

HABITAT. San Domingo and Porto Rico.

GENUS Cichlherminia BONAPARTE.

Cichlherminia Bp. Comptes Rendus, XXXVIII, p. 2 (1854).

Cichlherminia herminieri (LAFR.).

Turdus herminieri LAFR. Rev. Zool. 1844, p. 167.—GRAY, Gen. Bds. I. p. 219 (1844).

Cichlherminia herminieri BP. Compt. Rend. XXXVIII, p. 2 (1854).—SHARPE. Cat. Bds. Brit. Mus. VI. p. 327 (1881).—CORY, List Bds. W. I. p. 5 (1885).

Cichlherminia bonapartii SCL. P. Z. S. 1859. p. 335.

Cichlherminia l'herminierii GRAY, Handl. Bds. I, p. 259 (1869).

Margarops herminieri SCL. & SALV. Nom. Avium Neotr. p. 2 (1873).—LAWR. Pr. U. S. Nat. Mus. I, p. 52 (1878).—SCL. P. Z. S. 1880, p. 72.

SP. CHAR. *Male:*—Above brown; intermediate between *C. dominicensis* and *C. sanctæ-luciæ*; the feathers on the crown showing faint dusky

margins; ear-coverts brown, showing pale shaft-lines; throat rufous brown, palest on the upper portion, the centre of the feathers showing dull white; rest of underparts having the feathers white edged with brown, giving the feathers a clean-cut, pointed appearance, the white portion somewhat resembling a broad arrow head; quills and tail brown; upper surface of tail-feathers showing a rufous tinge; under mandible and tarsus pale.

The sexes are similar.

Length (skin), 9.40; wing, 5.25; tail, 3.50; tarsus, 1.70; bill, 1.

HABITAT. Guadeloupe and Martinique.

Cichlherminia sanctæ-luciæ (SCL.).

Margarops herminieri SCL. P. Z. S. 1871, p. 268.—SCL. & SALV. Nom. Avium Neotr. p. 2 (1873).

Margarops sanctæ-luciæ SCL. Ibis, 1880, p. 73.—ALLEN, Bull. Nutt. Orn. Club, V, p. 165 (1880).

Margarops herminieri var. *semperi* LAWR. MS. Bull. Nutt. Orn. Club, V, p. 165 (1880).

Cichlherminia sanctæ-luciæ SHARPE, Cat. Bds. Brit. Mus. VI, p. 328 (1881).—CORY, List Bds. W. I. p. 5 (1885).

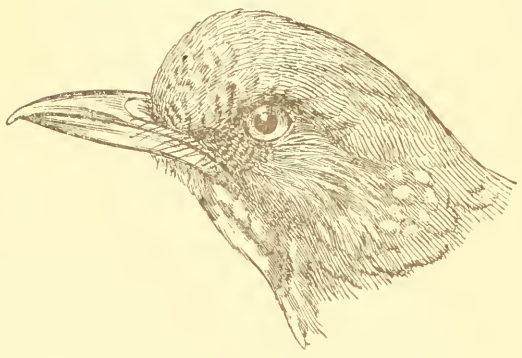
SP. CHAR. *Male*:—Above light brown, showing a faint olive tinge, the color paler than in *C. herminieri;* throat dull white, showing brown shaft-markings; feathers of the breast brownish white, edged with olive brown; abdomen white, showing the brown marking on the sides; quills and tail light brown; under surface of tail ashy brown; under tail-coverts showing reddish brown at the base; under mandible and tarsus dull yellow.

The sexes are similar.

Length (skin), 10; wing, 5.10; tail, 3.70; tarsus, 1.55; bill, .90.

HABITAT. Santa Lucia.

Cichlherminia dominicensis (LAWR.).



Margarops herminieri LAWR. Pr. U. S. Nat. Mus. I, p. 52 (1878).

Margarops dominicensis LAWR. Pr. U. S. Nat. Mus. III, p. 16. (1880).

Cichlherminia dominicensis SHARPE, Cat. Bds. Brit. Mus. VI, p. 328 (1881).—CORY, List Bds. W. I. p. 5 (1885).

"*Male*:—The entire upper plumage is of a rich dark brown, the crown is darker and has the edges of the feathers of a lighter shade; tail and quill-feathers of a darker brown than the back; axillars and under wing-coverts white; the lores are blackish brown; the feathers back of the eyes and the ear-coverts have narrow shaft-streaks of pale rufous; the feathers of the neck and upper part of the breast are of a warm dark brown, those of the chin and middle of the throat with light rufous centres, those of the lower part of the neck and the upper part of the breast have also light rufous centres, but in addition each feather has a light terminal spot; on the lower part of the breast and on the sides the feathers have white centres, bordered strikingly with brown; the markings of the breast-feathers are squamiform in shape, those of the sides lanceolate; the abdomen is white, a few feathers on the upper part are very narrowly margined with brown; under tail-coverts brown, terminating with white; outer feathers of thighs brown, the inner whitish; 'iris tea-color'; there is a naked space around the eye; bill yellow, with the basal half of the upper mandible dusky; tarsi and toes pale yellow."

The sexes are similar.

"Length (fresh), 9 inches; wing, 5; tail, $3\frac{1}{2}$; tarsus, $1\frac{3}{4}$; bill from front, 15-16, from gape $1\frac{1}{8}$." (LAWR. orig. descr.)

HABITAT. Dominica.

GENUS Sialia SWAINS.

Sialia SWAINSON, Zool. Journ. III, p. 173 (1827).

Sialia sialis (LINN.).

Motacilla sialis LINN. Syst. Nat. I, p. 187 (1758); *ib.* I. p. 336 (1766).

Sialia sialis GUNDL. J. f. O. 1861, p. 324: *ib.* 1862, p. 177; *ib.* 1872, p. 409; *ib.* Repert. Fisico-Nat. Cuba, I, p. 230 (1865) (Cuba).—BAIRD, Rev. Am. Bds. p. 62 (1864).—CORY, List Bds. W. I. p. 5 (1885).

Cuba; no other West Indian record.

GENUS Myiadestes SWAINS.

Myiadestes SWAINSON, Nat. Libr. Ornith. p. 132 (1838).

Myiadestes sibilans LAWR.

Myadestes sibilans LAWR. Ann. N. Y. Acad. Sci. I, p. 148 (1878); *ib.* Pr. U. S. Nat. Mus. I. p. 188 (1878).—LISTER, Ibis, 1880, p. 39.—CORY, List Bds. W. I. p. 5 (1885).

Myiadectes sibilans SHARPE, Cat. Bds. Brit. Mus. VI, p. 371 (1881).

Myadestes sibilans STEJN. Pr. U. S. Nat. Mus. V, p. 17 (1882).

SP. CHAR.—Tail shorter than wing; upper surface very dark-brown, almost black; a tinge of olive brown on the lower back and rump; chin and portion of malar stripe joining base of lower mandible white, the rest the color of throat; shafts of ear-coverts showing delicate lines of white; the lower eyelid is also white; throat bright rufous, tinged with orange, separated from the malar stripe by a narrow black line; breast and upper abdomen ashy gray, some of the feathers often tipped with orange rufous; rest of underparts like the throat; wings black; a white patch at base of inner webs of first six primaries reaching and extending to the base of outer web on the seventh, eighth, and ninth; central tail-feathers black, becoming grayish at base; outer tail-feather showing a wedge-shaped white mark on inner web, nearly reaching the base, which is brownish black; outer web showing brownish black on terminal half, next feather marked like outer feather, but having much less white, third narrowly tipped with white, rest black except the two central feathers, as above described; bill black; legs pale yellow; "iris hazel." Some specimens seem to lack the white spot at tip of of third outer tail feather.

Length about 7.20; wing, 3.30; tail, 2.75; tarsus, .95.

HABITAT. St. Vincent.

Myiadestes genibarbis SWAINS.

Myiadestes genibarbis SWAINS. Nat. Libr. XIII, p 134 (1838).—BAIRD, Rev. Am. Bds. p. 423 (1864).—GRAY, Handl. Bds. I, p. 366 (1869).—LAWR. Pr. U. S. Nat. Mus. I, p. 352 (1878).—CORY, List Bds. W. I. p. 5 (1885).

Myiadectes genibarbis SHARPE, Cat. Bds. Brit. Mus. VI, p. 370 (1881).

Myadestes genibarbis STEJN. Pr. U. S. Nat. Mus. V, p. 18 (1882).

"Upper surface pure slaty-plumbeous, forehead slightly washed with olivaceous; lores black; also a stripe below the white patch on the under eyelid, assuming the color of the back on the ear-coverts, each feather of which and the above-mentioned stripe having a narrow well-defined white central streak behind, very faintly washed with brownish. From the base of lower mandible a well-defined malar stripe runs backwards, the anterior third of which is white, while the lower two-thirds have the color of the throat, from which the malar stripe is separated by a narrow, but distinct, black stripe, reaching close to the lower edge of the mandible. Throat and chin chestnut rufous, the white bases of the feathers on the latter showing somewhat through. Breast and upper sides of abdomen lighter than the back, almost clear ash-gray, becoming gradually lighter towards the abdomen; remaining underparts of the same color as the throat, only somewhat paler, and assuming a faint olivaceous shade on the upper abdomen; tibia like the back, a few feathers being tipped with rufous. Wings blackish, with pale edges on the primaries and two ash-gray bars across the secondaries, leaving between them a deep black

patch; wing-coverts, except the primary coverts, broadly edged with gray like the back; innermost secondaries almost entirely so; inner web of the quills white at the base, forming a broad bar on the under surface of the wing; edge of wing grayish white. Middle tail-feathers uniform slate-gray; the following pairs black, the outermost with a wedge-shape white spot on the inner web at the end, making on the innermost only one-fifth of the length of the quill, on the middle one about one-half, and on the outermost about two-thirds, the outer webs being light slate-gray for the same extent from the tip. Bill black, legs pale brownish yellow. The female seems to differ from the male in having the gray color of the breast less pure, this part being somewhat suffused with rufous-olive." (STEJN. l. c.)

Length, 7.30; wing, 3.40; tail, 3.25; tarsus, .82.

HABITAT. Martinique.

Myiadestes sanctæ-luciæ STEJN.

Myiadestes genibarbis SCL. P. Z. S. 1871, p. 269.—SEMPER, P. Z. S. 1872, p. 649.—SCL. & SALV. Nom. Avium Neotr. p. 4 (1873).—ALLEN, Bull. Nutt. Orn. Club, V, p. 166 (1880).—CORY, List Bds. W. I. p. 5 (1885).

Myadestes sanctæ-luciæ STEJN. Pr. U. S. Nat. Mus. V, p. 20 (1882).

"Whole upper parts slaty plumbeous with a conspicuous olivaceous wash, becoming more intense on the lower back, but lacking on the rump and upper tail-coverts. The pattern of the head that of *M. genibarbis*, except that the black stripe below the eye extends further back on the auriculars, and that the white part of the malar stripe occupies the forward half. Chin pure white, this color abruptly defined against the throat, which is rufous chestnut. The remaining underparts like those of the Martinique bird, except that the gray of the breast extends more back on the abdomen. Wings and tail also have the same general appearance as in the above-mentioned species; on the wing, however, the black speculum of the secondaries is more reduced, the adjacent gray cross-bands being broader, and on the tail the white is more extended, especially on the outer pair, in which the middle third of the outer web is white; besides, the outer webs of the three outermost rectrices are broadly tipped with white, and the following two pairs have also very distinct white tips. Bill black, feet pale yellow. In none of the seven specimens before me is the sex indicated; but as they show no differences the specimen described above, I presume there is no difference between the male and female." (STEJN. orig. descr.)

Length, 7.25; wing, 3.45; tail, 3.30; tarsus, .86.

HABITAT. Santa Lucia.

Myiadestes dominicanus STEJN.

Myiadestes genibarbis LAWR. Pr. U. S. Nat. Mus. I, p. 53 (1878).—CORY, List Bds. W. I. p. 5 (1885).

Myadestes dominicanus STEJN. Pr. U. S. Nat. Mus. V, p. 22 (1882).

"Above slaty plumbeous, with a very faint tinge of olivaceous on head and back; lores and a narrow stripe above the eyes conspicuously suffused with olivaceous; almost the whole malar stripe whitish, the feathers the lower end tipped with chestnut; chin white, throat pure chestnut; breast, flanks, and abdomen, except the lower middle part of the latter, ash-gray, duller on the breast, more whitish on the abdomen, and very faintly washed with olivaceous, especially on the flanks, where more tinged with rufous; lower middle of abdomen, crissum, and under tail-coverts chestnut-rufous; wings and tail as in *M. sanctæ-lucæ*, the light basal spot on the outer web of the innermost primaries being very conspicuous and well defined; the black speculum on the secondaries larger and the amount of white on the outer tail feathers rather less than in that bird: bill black, feet pale yellow. The female differs only in having a stronger wash of olive on the back." (STEJN. orig. descr. l. c.)

Length, 7.20; wing, 3.40; tail, 3.25; tarsus, .85.

HABITAT. Dominica.

Myiadestes montanus CORY.

Myiadestes montanus CORY, Bull. Nutt. Orn. Club, VI, pp. 130, 151 (1881); *ib.* Bds. Haiti & San Domingo, p. 52 (1885); *ib.* List Bds. W. I. p. 5 (1885).

Myiadectes montanus SHARPE, Cat. Bds. Brit. Mus. VI, p. 370 (1881).

Myadestes montanus STEJN. Pr. U. S. Mus. V, p. 23 (1882).

SP. CHAR. *Female:*—Upper parts and two central tail-feathers slaty gray; primaries and secondaries brownish black, showing white near the base of the inner webs; outer webs of primaries and terminal portion of the outer webs of secondaries edged with gray; no white spot on the chin; a spot of chestnut at the malar apex; lower eyelid whitish; throat, crissum, and belly, near the vent, reddish brown, intermediate between that of *M. solitarius* and *M. sibilans*, but approaching nearer the color of the former; rest of underparts pale gray; outer tail-feather white, with black shafts, showing a dark tinge near the extremity of the outer web; second feather black, with the central portion of the terminal half white, the black narrowing to the extremity, leaving the tip white; third feather showing a triangular patch of white at the tip; rest of tail-feathers, except the two central ones, black; bill black; legs and feet pale; iris brown.

Length, 7; wing, 3.35; tail, 3.38; tarsus, 1; bill, .38.

HABITAT. Haiti. Inhabits the mountains. The type, in my collection, is unique, although the bird is probably not uncommon in some of the mountains in the interior.

Myiadestes solitarius BAIRD.

Ptilogonys armillatus GRAY, Gen. Bds. I, p. 281 (1844).—GOSSE, Bds. Jam. p. 198 (1847).—SCL. P. Z. S. 1861, p. 73.—ALBRECHT, J. f. O. 1862, p. 196.

Myiadestes armillatus BP. Consp. I, p. 335 (1850).—SCL. Cat. Am. Bds. p. 47 (1862).

Myiadestes solitarius BAIRD, Rev. Am. Bds. p. 421 (1864).—GRAY, Handl. Bds. I, p. 366 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 4 (1873).—CORY, List Bds. W. I. p. 5 (1885).

Myiadectes solitarius SHARPE, Cat. Bds. Brit. Mus. VI, p. 369 (1881).—A. & E. NEWTON, Handb. Jamaica, p. 107 (1881).

Myadestes solitarius STEJN. Pr. U. S. Nat. Mus. V, p. 24 (1882).

Myiadestes armillatus MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 294.

SP. CHAR.—Upper surface slaty-plumbeous; faint tinge of olivaceous on the forehead; cheeks dull black; lower eyelid and a small spot at the malar apex and extremity of chin white, rest of throat chestnut; underparts slaty-plumbeous, becoming lighter on the belly and crissum; under tail-coverts chestnut; wings and tail as in other species in character of marking.

Length, 7.45; wing, 3.6; tail, 3.6; tarsus, .80.

HABITAT. Jamaica.

Myiadestes elizabeth (LEMB.).

Muscicapa elizabeth LEMB. Aves Cuba, p. 39 (1850).

Myiadestes elizabeth CAB. J. f. O. 1856, p. 2.—BREWER. Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—BAIRD, Rev. Am. Bds. p. 425 (1864).—GRAY, Handl. Bds. I, p. 366 (1869).—GUNDL. J. f. O. 1872, p. 428; *ib.* Orn. Cuban Anales. 1873, p. 79.—CORY, List Bds. W. I. p. 5 (1885).

Myiadestes elizabethæ NEWTON, Ibis, 1859, p. 110.—ALBRECHT, J. f. O. 1861, p. 209.—SCL. & SALV. Exot. Orn. 1867, p. 55, pl. 28; *ib.* Nom. Avium Neotr. p. 4 (1873).

Myiadectes elizabethæ SHARPE, Cat. Bds. Brit. Mus. VI, p. 372 (1881).

Myadestes elizabeth STEJN. Pr. U. S. Nat. Mus. V, p. 26 (1882).

SP. CHAR.—Upper surface pale brownish olive, ashy on the head and rump; wings dull brown margined with pale ashy olive; tail brown margined with olive brown; central feathers dull brown, outer feathers tipped with white; throat and abdomen dull white; breast and sides shading into ashy; a faint tinge of white at the base of the forehead; lores and feathers at the eye showing pale buff; ear-coverts dull olive brown, with narrow white shaft-lines; flanks showing a tinge of olive brown; axillaries ash colored, showing a buff tinge; under wing-coverts pale buff.

Length, 7.90; wing, 3.45; tail, 3.35; tarsus, .88.

HABITAT. Cuba.

Myiadestes armillatus (VIEILL.).

Muscicapa armillata VIEILL. Ois. Am. Sept. p. 69, pl. 42 (1802); *ib.* Nouv. Dict. XXI, p. 448 (1818).

Ptilogonys armillatus GRAY, Gen. Bds. I, p. 281 (1844); *ib.* Handl. Bds. I, p. 366 (1869).

Myiadestes armillatus BAIRD, Rev. Am. Bds. p. 422 (1864).—SCL. P. Z. S. 1871, p. 270.—LAWR. Ann. N. Y. Acad. Sci. 1878, p. 149.—CORY, List Bds. W. I. p. 5 (1885).

Myiadectes armillatus SHARPE, Cat. Bds. Brit. Mus. VI, p. 370 (1881).

Myadestes armillatus STEJN. Pr. U. S. Nat. Mus. V, p. 25 (1882).

If this bird is not one of the known species poorly described, its true habitat yet remains to be discovered. Professor Baird gives the following translation (l. c.) of Vieillot's original description.

"Bill blackish; a white spot on the sides of the throat, and at its origin (the chin) immediately below the lower mandible (the two continuous); the eye surrounded by the same color. Head, back, rump, two intermediate tail-feathers, and the breast of a grayish-slate, paler below. Wing and tail feathers blackish, bordered externally by gray, the three lateral on each side of the tail more or less white. Belly and hinder parts brownish rufous; a beautiful yellow in form of a bracelet on the feathers of lower part of leg; feet brown; length 6 inches, 3 lines." (VIEILL. l. c.)

Vieillot gives the habitat as "Martinique."

FAMILY MIMIDÆ.

GENUS Margarops SCLATER.

Margarops SCLATER. P. Z. S. 1859, p. 335.

Margarops fuscatus (VIEILL.).

Turdus fuscatus VIEILL. Ois. Am. Sept. II, p. 1 (1807).—BP. Consp. I. p. 276 (1850).

Colluricincla fusca GOULD, P. Z. S. 1836, p. 6.

Mimus fuscatus BP. Compt. Rend. XXXVIII, p. 2 (1854).

Cichlalopia fuscatus BP. Rev. Zool. 1857, p. 204.

Margarops fuscatus SCL. P. Z. S. 1859, p. 335.—BAIRD, Rev. Am. Bds. p. 42 (1864).—GRAY, Handl. Bds. I, p. 259 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 2 (1873).—GUNDL. J. f. O. 1874, p. 310; *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 172 (1878).—CORY, Bds. Bahama I. p. 47 (1880:) *ib.* Bds. Haiti & San Domingo, p. 22 (1885); *ib.* List Bds. W. I. p. 6 (1885).

Cichlherminia fuscata A. & E. NEWTON, Ibis, 1859, p. 141.—SHARPE, Cat. Bds. Brit. Mus. VI, p. 329 (1881).

Merula fuscata CASSIN, Pr. Acad. Nat. Sci. Phila. 1860, p. 376.

Margarops fusca GRAY, Handl. Bds. I, p. 259 (1869).

SP. CHAR. *Male*:—Above brown, the feathers slightly edged with ash; throat and breast brown, feathers heavily edged with white, giving a mottled appearance which shows faintly on the belly and almost disappears at the vent; primaries brown, pale edged; upper tail-coverts tipped with white; tail brown, tipped with white; bill yellowish, with an olive tinge; upper mandible shading into brown at the base; legs pale olive; iris pale yellow.

The sexes are apparently similar.

Length, 10.25; wing, 5.20; tail, 4.50; tarsus, 1.40; bill, .76.

HABITAT. Inagua, Bahamas; Porto Rico, San Domingo? St. Thomas, St. Croix.

Margarops densirostris (VIEILL.).

Turdus densirostris VIEILL. Nouv. Dict. XX, p. 233 (1816).—LAFR. Rev. Zool. 1844, p. 167.—BP. Consp. I, p. 271 (1850).

Cichlherminia densirostris BP. Compt. Rend. XXXVIII, p. 2 (1854).—SHARPE, Cat. Bds. Brit. Mus. VI, p. 330 (1881).

Margarops densirostris SCL. P. Z. S. 1859, p. 336.—GRAY, Handl. Bds. I, p. 259 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 2 (1873).—LAWR. Pr. U. S. Nat. Mus. I, p. 233 (1878).—SCL. P. Z. S. 1879, p. 765.—ALLEN, Bull. Nutt. Orn. Club, V, p. 166 (1880).—CORY, List Bds. W. I. p. 6 (1885).

SP. CHAR. *Male*:—Above dark brown, feathers edged with pale brown; primaries dark brown, margined with reddish brown; inner secondaries tipped with white; throat heavily marked with white on the upper portion, shading into dark brown on the breast, the feathers edged with white; centre of the belly dull white; sides mottled with white and brown; under tail-coverts white, banded with brown; tail dark brown, tipped with white; bill and legs horn color; iris pale yellow.

The sexes are similar.

Length (skin), 10.75; wing, 5.30; tail, 4.30; tarsus, 1.25; bill, 1.10.

HABITAT. Dominica, Martinique, Montserrat, Santa Lucia and Guadeloupe.

Margarops montanus (LAFR.).

Turdus montanus LAFR. Rev. Zool. 1844, p. 167.

Margarops montanus SCL. P. Z. S. 1859, p. 336; *ib.* 1871, p. 268.—GRAY, Handl. Bds. I, p. 259 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 2 (1873).—LAWR. Pr. U. S. Nat. Mus. I, p. 52 (1878). — LISTER, Ibis,

1880, p. 39.—ALLEN, Bull. Nutt. Orn. Club, V, p. 166 (1880).—CORY, List Bds. W. I. p. 6 (1885).

Cichlherminia montana SHARPE, Cat. Bds. Brit. Mus. VI, p. 330 (1881).

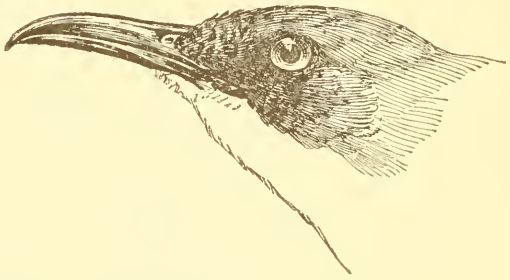
SP. CHAR. *Male:*—Upper plumage dark olive brown; throat and breast brown, the feathers edged with white; feathers of the lower breast dull white, banded with pale brown, the whole giving a mottled white and brown appearance to the underparts; wings and tail dark brown; the inner secondaries and some of the coverts tipped with white; tail-feathers tipped with white; bill and feet dark brown.

The female is somewhat lighter brown than the male on the under surface.

Length (skin), 9.20; wing, 4.55; tail, 3.75; tarsus, 1; bill, .65.

HABITAT. Martinique, St. Vincent, Dominica, Santa Lucia, and Guadeloupe.

GENUS **Ramphocinclus** LAFR.



Ramphocinclus LAFR. Rev. Zool. 1843, p. 66.

Ramphocinclus brachyurus (VIEILL.).

Turdus brachyurus VIEILL. Nouv. Dict. XX, p. 255 (1818).—GRAY, Gen. Bds. I, p. 219 (1844).

Pterodroma mexicanus LESS. Ann. Soc. Nat. 2d ser. IX, p. 168 (1838).

Ramphocinclus brachyurus LAFR. Rev. Zool. 1843, p. 66.—TAYLOR, Ibis, 1864, p. 166.—BAIRD, Rev. Am. Bds. p. 41 (1864).—GRAY, Handl. Bds. I, p. 264 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 2 (1873).—LAWR. Pr. U. S. Nat. Mus. I, p. 486 (1878).—CORY, List Bds. W. I. p. 6 (1885).

Formicarius brachyurus GRAY, Gen. Bds. I, p. 211 (1844).

Legriocinclus mexicanus LESS. Descr. Mamm. et Ois. p. 278 (1847).

Campylorhynchus brachyurus GRAY, Gen. Bds. III, App. p. 7 (1849).

Zoothera cinclops BP. Consp. I, p. 253 (1850).

Cinclocerthia brachyurus SCL. P. Z. S. 1855, p. 214.

Rhamphocinclus brachyurus SCL. P. Z. S. 1859, p. 338; *ib.* 1871, p. 268.—ALLEN, Bull. Nutt. Orn. Club, V, p. 166 (1880).—SHARPE, Cat. Bds. Brit. Mus. VI, p. 325 (1881).

SP. CHAR. *Male:*—Top of the head dark brown, rest of upper surface dark brown, showing a tinge of chocolate brown on the back; lores and below the eye black, shading into brown on the ear-coverts; throat and breast pure white; belly white; sides of the body chocolate brown; wings and tail dark brown; bill dark brown, almost black; legs dark olive brown; iris reddish brown.

The sexes are similar.

Length (skin), 8.50; wing, 4.25; tail, 3.80; tarsus, 1.25; bill, 1.

HABITAT. Santa Lucia and Martinique.

GENUS Cinclocerthia GRAY.

Cinclocerthia GRAY, List Gen. Bds. p. 17 (1840).

Cinclocerthia ruficauda (GOULD).

Stenorhynchus ruficaudus GOULD, P. Z. S. 1835, p. 186.

Cinclocerthia ruficauda GRAY, List Gen. Bds. p. 17 (1840).—SCL. Cat. Am. Bds. p. 7 (1862).—LAWR. Pr. U. S. Nat. Mus. I, p. 486 (1878).—SHARPE, Cat. Bds. Brit. Mus. VI. p. 320 (1881).—CORY, List Bds. W. I. p. 6 (1885).

Ramphocinclus tremulus LAFR. Rev. Zool. 1843, p. 67.—SCL. P. Z. S. 1855, p. 213.

Herminierus guadeloupensis LESS. Rev. Zool. 1843, p. 325.

Herminierus infaustus LESS. *t. c.* p. 325.

Thriothorus l'herminieri LESS. *t. c.* p. 326.

Formicarius tremulus GRAY, Gen. Bds. I, p. 211 (1844).

SP. CHAR. *Male:*—Above ashy brown, shading into rufous brown on the back and rump; lores and ear-coverts dark brown; a patch in front of the eye brownish black; chin and throat very pale brown, becoming reddish brown on the belly; tail rufous brown; quills dark brown, edged with rufous brown.

The sexes are apparently similar.

Length (skin), 9.30; wing, 4; tail, 3.70; tarsus, 1; bill, 1.30.

HABITAT. Guadeloupe and Dominica.

Cinclocerthia macrorhyncha SCL.

Cinclocerthia macrorhyncha SCL. P. Z. S. 1866, p. 320; *ib.* 1871, p. 268.—GRAY, Handl. Bds. I, p. 263 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 2 (1873).—ALLEN, Bull. Nutt. Orn. Club, V, p. 166 (1880).—SHARPE, Cat. Bds. Brit. Mus. VI, p. 325 (1881).—CORY, List Bds. W. I. p. 6 (1885).

SP. CHAR. *Male:*—General plumage above ashy; forehead dark brown; feathers in front of the eye, including lores and ear-coverts dark brown; throat dull white, shading into ashy on the breast, and

showing a tinge of rufous on the sides and under tail-coverts; the rufous slightly perceptible on the abdomen, varying in different specimens; wings dull brown, the coverts ashy; tail brown, an olive tinge on the upper surface; legs greenish; iris dull yellow.

The sexes are similar.

Length (skin), 9.30; wing, 4.20; tail, 3.20; tarsus. 1.20; bill, 1.35.

HABITAT. Santa Lucia.

Cinclocerthia gutturalis (LAFR.).

Ramphocinclus gutturalis LAFR. Rev. Zool. 1843, p. 67.—BP. Consp. I, p. 223 (1850).

Formicarius gutturalis GRAY, Gen. Bds. I, p. 211 (1844).

Campylorhynchus gutturalis GRAY, Gen. Bds. III, App. p. 7 (1849).

Cinclocerthia gutturalis SCL. P. Z. S. 1855, p. 214.—GRAY, Handl. Bds. I, p. 263 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 2 (1873).—LAWR. Pr. U. S. Nat. Mus. II, p. 351 (1879).—SHARPE, Cat. Bds. Brit. Mus. VI, p. 324 (1881).—CORY, List Bds. W. I. p. 6 (1885).

SP. CHAR. *Male:*—Upper parts brown, darkest on the head; underparts dull brownish white, the white showing clearest on the throat and belly, but never entirely free from a grayish tinge; wings and tail brown; bill and feet dark brown; iris gray.

The sexes are similar.

Length (skin), 9.25; wing, 4.50; tail, 4; tarsus, 1.25.

It is possible that at some seasons the under surface may be differently colored, but in all the specimens before me, the underparts are marked with a dull mixture of brown and white.

HABITAT. Martinique.

GENUS Galeoscoptes CABAN.

Galeoscoptes CABANIS, Mus. Hein. I, p. 82 (1850).

Galeoscoptes carolinensis (LINN.).

Muscicapa carolinensis LINN. Syst. Nat. I, p. 328 (1766).

Turdus carolinensis LICHT.—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois p. 51 (1840).—GUNDL. J. f. O. 1861, p. 324 (Cuba).

Galeoscoptes carolinensis CAB. Mus. Hein. I, p. 82 (1850).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 230 (1865); *ib.* J. f. O. 1872, p. 407 (Cuba).—CORY, List Bds. W. I. p. 6 (1885).

Mimus carolinensis BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).—CORY, Bds. Bahama I. p. 51 (1880).

Mimus (Galeoscoptes) carolinensis BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 69 (1867).

Occasional in the Bahama Islands and Cuba.

GENUS Mimus BOIE.

Mimus BOIE, Isis, 1826, p. 972.

Mimus polyglottus (LINN.).

Turdus polyglottus LINN. Syst. Nat. I, p. 293 (1766).
Orpheus polyglottus D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 53 (1840).
Mimus polyglottus BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 230 (1865) (Cuba); *ib.* J. f. O. 1872, p. 408 (Cuba).—CORY, List Bds. W. I. p. 6 (1885).

Cuban specimens of this bird are very rare. A specimen in my collection is labelled, in the handwriting of Dr. Gundlach, *Mimus polyglottus cubensis*. It is apparently *M. elegans*, although somewhat larger, and may represent a new race. Perhaps both species are represented there, as I have seen specimens of *polyglottus* labelled "Cuba."

Mimus orpheus (LINN.).

Turdus orpheus LINN. Syst. Nat. I, p. 293 (1766).—VIEILL. Ois. Am. Sept. II, p. 12, pl. 68 (1807).—GOSSE, Bds. Jam. p. 144 (1847).
Mimus orpheus GRAY, Gen. Bds. I. p. 221 (1844).—BP. Consp. I, p. 276 (1850).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p, 290.—BAIRD, Rev. Am. Bds. p. 50 (1864).—SCL. & SALV. Nom. Avium Neotr. p. 3 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 105 (1881).—SHARPE, Cat. Bds. Brit. Mus. VI, p. 340 (1881).—CORY, List Bds. W. I. p. 6 (1885).
Mimus polyglottus GOSSE, Bds. Jam. p. 144 (1847).—ALBRECHT, J. f. O. 1862, pp. 194, 201.—HILL, Pr. Acad. Nat Sci. Phila. 1863, p. 304.—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 173 (1878).
Mimus polyglottus var. *portoricensis* BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 68 (1866).
Mimus polyglottus var. *cubanensis* BRYANT, *l. c.* p. 68.

SP. CHAR.—Above grayish brown, showing ashy on the back; underparts white, showing a tinge of ash on the breast; wings brown, primaries heavily marked with white, the eighth and ninth almost entirely white; tail dark brown, outer feather entirely white, second nearly so, showing a brownish line on outer web more or less distinct, third feather having outer web brown, inner web white; bill black; legs brownish.

Length, 9.50; wing, 4.30; tail, 5; tarsus, 1.20.

HABITAT. Jamaica.

Mimus elegans SHARPE.

Mimus polyglottus (var. *bahamensis?*) BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 68 (1866).—GRAY, Handl. Bds. I, p. 261 (1869).
Mimus orpheus var. *dominicus* CORY, Bds. Bahama I, p. 48 (1880).
Mimus elegans SHARPE, Cat. Bds. Brit. Mus. VI, p. 339 (1881).—CORY, List Bds. W. I. p. 6 (1885).

SP. CHAR. *Male:*—Above grayish brown, showing ashy on the back; underparts white, slightly tinged with ashy on the breast; wings brown; all of the primaries heavily marked with, and the eighth and ninth almost entirely white; tail brown, having the first two and entire inner web of third feathers white; bill black; legs brownish.

The sexes are similar.

Length, 8.50; wing, 4; tail, 4.20; tarsus, 1.20; bill, .64.

HABITAT. Inagua, Bahama Islands.

Mimus dominicus (LINN.).

Turdus dominicus LINN. Syst. Nat. I. p. 295 (1766).
Turdus merle MÜLL. Syst. Nat. Anhang, p. 139 (1766).
Mimus dominicus GRAY, Gen. Bds. I, p. 221 (1844).—BP. Consp. I, p 276 (1850).—SCL. P. Z. S. 1859, p. 341.—GRAY. Handl. Bds. I, p. 262 (1869).—SHARPE, Cat. Bds. Brit. Mus. VI, p. 341 (1881).—CORY, Bds. Haiti & San Domingo, p. 21 (1885); *ib.* List Bds. W. I. p. 6 (1885).
Mimus polyglottus var. *dominicus* BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 63 (1866).
Mimus orpheus dominicus CORY, Bull. Nutt. Orn. Club, VI, p. 151 (1881).

SP. CHAR. *Male:*—Above grayish brown, showing ashy on the back; underparts white, slightly tinged with ashy on the breast; wings brown; all of the primaries heavily marked with, and the eighth and ninth almost entirely white; tail dark brown, having the first two and inner web of third feathers white; bill black; legs brownish.

Sexes are similar.

Length, 8.50; wing, 4; tail, 4.18; tarsus, 1.20; bill, .64.

HABITAT. Haiti and San Domingo.

This species is very closely allied to *M. orpheus*, and perhaps should not be separated from it.

Mimus gilvus (VIEILL.).

Turdus gilvus VIEILL. Ois. Am. Sept. II, p. 15 (1807).
Mimus gilvus JARD. Ann. Nat. Hist. 2nd ser. XX, p. 329 (1847).— BP.

Consp. I. p. 276 (1850).— SCL. P. Z. S. 1859. p. 342.—SCL. & SALV. Nom. Avium Neotr. p. 3 (1873).—LAWR. Pr. U. S. Nat. Mus. I, p. 187 (1878).—ALLEN, Bull. Nutt. Orn Club, V, p. 166 (1880).—SHARPE, Cat. Bds. Brit. Mus. VI, p. 350 (1881).—RIDGW. Pr. U. S. Nat. Mus. VII. p. 172 (1884).—CORY, List Bds. W. I. p. 6 (1885).

Mimus melanopterus LAWR. Ann. Lyc. N. Y. V, p. 35, pl. 2 (1849).—SCL. Cat. Am. Bds. p. 9 (1862).—FINSCH, P. Z. S. 1870. p. 553.

Mimus columbianus CAB. Mus. Hein. I, p. 82 (1850).

Mimus gracilis CAB. Mus. Hein. I, p. 83 (1850).—BAIRD, Rev. Am. Bds. p. 54 (1864).—LAWR. Ann. Lyc. N. Y. IX. p. 91 (1868).

SP. CHAR.—Above grayish brown, ashy on the rump and forehead: underparts dull ashy white; flanks streaked slightly with brownish, wings brown, edged with dull white; under wing-coverts marked with brown; tail dark brown, all the feathers tipped with white, central feathers very slightly, sometimes apparently not at all, the white increasing to the outer feathers, which show a patch of white on tip of inner web, about three quarters of an inch in length, extending to a less extent to the outer web; bill and feet black.

Length (skin), 8.75; wing, 4.45; tail, 4; tarsus, 1.25.

Common in St. Vincent, Grenada, Santa Lucia, and St. Thomas.

Mimus gundlachi CABAN.

Mimus gundlachi CAB. J. f. O. 1855. p. 470.—SCL. P. Z. S. 1859. p. 342.—BAIRD. Rev. Am. Bds. p. 59 (1864).—BREWER. Pr. Bost. Soc. Nat. Hist. VII. p. 307 (1860).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 230 (1865).—SHARPE. Cat. Bds. Brit. Mus. VI, p. 344 (1881).—CORY, List Bds. W. I. p. 6 (1885).

Mimus bahamensis BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 114 (1859).—BAIRD. Rev. Am. Bds. p. 52 (1864).—CORY, Bds. Bahama I. p. 48 (1880); *ib.* List Bds W. I. p. 6 (1885).—SHARPE, Cat. Bds. Brit. Mus. VI, p. 334 (1881).

Scotiomimus bahamensis BRYANT, Pr. Bost. Soc. Nat. Hist. XI. p. 68 (1866).—GRAY, Handl. Bds. I. p. 262 (1869).

Mimus gundlachii GRAY. Handl. Bds. I. p. 262 (1869).—GUNDL. J. f. O. 1872, p. 409.

SP. CHAR. *Male:*—Much larger than *M. polyglottus*, and the white tail-feathers wanting. Above pale rufous brown, the rufous tint most marked on the rump and upper tail-coverts; below pale ash, streaked with fine lines of brown, becoming broader upon the sides; wings rufous brown, feathers slightly edged with pale rufous; wing-coverts tipped with white, forming two narrow bars; tail

dark brown, slightly tipped with dull white, wanting on the two middle feathers; legs bluish black; bill black; iris yellow.

The female resembles the male.

Length, about 11; wing, 5; tail, 5; tarsus, 1.60; bill, .90.

HABITAT. Bahama Islands and Cuba.

After a careful examination and comparison of a series of twenty-two of the so-called *M. bahamensis* and three specimens of *M. gundlachi*, I can not find any difference sufficient to characterize them as distinct species. One specimen from Cuba has more white on the tail-feathers than any from the Bahama Islands, but some of the latter show the white fully as much as the other Cuban examples. A large series from Cuba would determine the matter more satisfactorily.

Mimus hillii MARCH.

Mimus hillii MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 291.—BAIRD, Rev. Am. Bds. p. 52 (1864).—GRAY, HANDL. Bds. I, p. 262 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 3 (1873).—SHARPE, Cat. Bds. Brit. Mus. VI, p. 343 (1881).—CORY, List Bds. W. I. p. 6 (1885).

Mimus orpheus HILL, Pr. Acad. Nat. Sci. Phila. 1863, p. 304.—GRAY, Handl. Bds. I, p. 262 (1869).

Mimus hillii A. & E. NEWTON, Handb. Jamaica, p. 105 (1881).

SP. CHAR.—General appearance the same as that of *M. gundlachi*, differing from it by being slightly browner on the head, and somewhat paler on the underparts, with more white on the end of the tail-feathers.

Length (skin), 11.20; wing, 5; tail, 5.75; tarsus, 1.55.

HABITAT. Jamaica.

Very closely allied to *M. gundlachi*, and perhaps ought not to be separated from it.

FAMILY SYLVIIDÆ.

GENUS Polioptila SCL.

Polioptila SCLATER, P. Z. S. 1855, p. 11.

Polioptila lembeyi (GUNDL.).

Culicivora lembyei GUNDL. Ann. N. Y. Lyc. 1858, p. 273.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860).—ALBRECHT, J. f. O. 1861, p. 211.

Polioptila lembeyii BAIRD, Rev. Am. Bds. p. 68 (1864).
Polioptila lembeyei GUNDL. Repert. Fisico-Nat. Cuba, I, p. 231 (1865); *ib.* J. f. O. 1872, p. 410.—GRAY, Handl. Bds. I, p. 237 (1869).
Polioptila lembeyi BD. BWR. & RIDGW. Hist. N. Am. Bds. I, p. 78 (1874).—CORY, List Bds. W. I. p. 6 (1885).—SHARPE, Cat. Bds. Brit. Mus. X, p. 444 (1885).

SP. CHAR.—A narrow black line commences at the top of the eye, extending backwards, bordering the ear-coverts; above bluish gray; underparts ashy white, the white clearest on the abdomen; tail-feathers narrow and long, having the shafts dark brown, outer feather white, except the basal half of inner web, which is dark brown, second having the terminal third white and outer web narrowly tipped with white, third feather tipped with white, rest of tail-feathers brownish black; wings brownish black, the feathers edged with white, no white on the edges of the first two primaries.

Length (skin), 4.58; wing, 1.50; tail, 2; tarsus, .70; bill, .35.

HABITAT. Cuba.

Polioptila cærulea (LINN.).

Motacilla cærulea LINN. Syst. Nat. I, p. 337 (1766).
Culicivora cærula D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 90 (1840).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860) (Cuba).—GUNDL. J. f. O. 1861, p. 407 (Cuba).
Polioptila cærulea GUNDL. J. f. O. 1861, p. 324; *ib.* 1872, p. 409.—CORY, Bds. Bahama I. p. 52 (1880); *ib.* List Bds. W. I. p. 6 (1883).

Common in the Bahama Islands; breeds. Numerous records from Cuba.

FAMILY TROGLODYTIDÆ.

GENUS Thryothorus VIEILL.

Thryothorus VIEILLOT, Analyse, p. 45 (1816).

Thryothorus martinicensis SCL.

Thryothorus martinicensis SCL. P. Z. S. 1866, p. 321.—SCL. & SALV. Nom. Avium Neotr. p. 7 (1873).—LAWR. Pr. U. S. Nat. Mus. I, p. 352 (1878).—SHARPE, Cat. Bds. Brit. Mus. VI, p. 228 (1881).—CORY, List Bds. W. I. p. 7 (1885).
Hylemothrous martinicensis GRAY, Handl. Bds. I, p. 191 (1869).

SP. CHAR. *Male:*—Upper parts dark brown, very narrowly lined on the back; feathers of the wings and tail banded with narrow lines; under surface pale rufous brown. Resembles *T. grenadensis*, but is darker.

The sexes are similar.

Length (skin), 5; wing, 2.15; tail, 2.10; tarsus, .80; bill, .10.

HABITAT. Martinique.

Thryothorus rufescens LAWR.

Thryothorus rufescens LAWR. Ann. N. Y. Acad. Sci. I. p. 47 (1878); *ib.* Pr. U. S. Nat. Mus. I, p. 486 (1878).—SHARPE, Cat. Bds. Brit. Mus. VI, p. 228 (1881).—CORY, List Bds. W. I. p. 7 (1885).

"*Male.* Entire plumage rufous, much deeper in color above, of a lighter and brighter shade underneath; tail dark rufous, regularly and closely crossed with narrow bars of black; the coloring of the underpart of the tail is duller, but is barred in a similar manner; inner webs of quills blackish brown, outer webs and both webs of the innermost secondaries dark rufous, with distinct narrow bars of black; upper mandible dark brown, the under yellowish-white; feet pale brown.

Length, 4⅜ in.; wing, 2⅛; tail, 1⅞; tarsus, 11-16; bill from front 9-16; from rictus ¾." (LAWR. orig. descr.)

HABITAT. Dominica and Guadeloupe.

Thryothorus musicus LAWR.

Thryothorus musicus LAWR. Ann. N. Y. Acad. Sci. I. p. 148 (1878); *ib.* Pr. U. S. Nat. Mus. I, p. 486 (1878).—SHARPE, Cat. Bds. Brit. Mus. VI, p. 223 (1881).—CORY, List Bds. W. I. p. 7 (1885).

"*Male.* Above of a dark ferruginous, somewhat darker on the crown and brighter on the rump; lores, and a line running back from the eye, white tinged with rufous; the exposed portions of the wings are dark rufous, conspicuously barred with black; the inner webs of the primaries are blackish-brown; under wing-coverts white; the tail-feathers are dark rufous, barred with black; the entire back and upper tail-coverts are marked inconspicuously with narrow transverse dusky lines; the feathers of the rump have concealed white shaft-stripes, which become wider towards the ends of the feathers; the feathers of the back also have the basal portion of their shafts marked with white; the throat, breast, and middle of the abdomen are white, the latter tinged with rufous; the sides are light ferruginous; the under tail-coverts are rufous, each feather marked with a subterminal round black spot; upper mandible, black; the under

whitish, with the end dusky; tarsi and toes light brownish flesh color.

"Length (fresh), 5½ in.; wing 2½; tail 1 13-16; tarsus ¾." (LAWR., orig. descr.)

HABITAT. St. Vincent.

Thryothorus grenadensis LAWR

Thryothorus grenadensis LAWR. Ann. N. Y. Acad. Sci. I, p. 161 (1878); *ib.* Pr. U. S. Nat. Mus. I, p. 486 (1878).— SHARPE, Cat. Bds. Brit. Mus. VI, p. 228 (1881).— CORY, List Bds. W. I. p. 7 (1885).

"*Female.* Upper plumage of a rather bright ferruginous, a little inclining to brownish on the head and hind neck, and brighter on the rump; lores whitish tinged with rufous; a light rufous stripe extends over the eye to the hind neck: tail dull rufous, barred with black; the primary quills have their outer webs of a dull light rufous, with broad black bars; the inner webs are brownish-black; the wing-coverts and tertials are rufous with narrower black bars; under wing-coverts pale rufous; the throat is very pale rufous, inclining to whitish; the breast light rufous; the middle of the abdomen is of a rather paler shade; the sides and under tail-coverts are of a bright darker ferruginous; the upper mandible brownish-black; the under pale yellow, dusky at the tip; tarsi and toes hazel brown.

"Length (fresh), 4¾ inches: wing 2¼; tail 1½; tarsus ¾; bill from front, 11-16." (LAWR. orig. descr.)

HABITAT. Grenada.

Thryothorus mesoleucus SCL.

Thryothorus mesoleucus SCL. P. Z. S. 1876, p. 14.— ALLEN, Bull. Nutt. Orn. Club, V, p. 166 (1880).— SHARPE, Cat. Bds. Brit. Mus. VI, p. 223 (1881).— CORY, List Bds. W. I. p. 7 (1885).

SP. CHAR.— Top of head brown, the feathers delicately edged with lighter brown, giving a faint mottled appearance to the crown; back rufous brown, the rufous showing brightest on the rump: wings and tail brown delicately banded with brownish black; sides of the head and neck buff, shading into buffy white on the throat and breast; abdomen and crissum pale rufous; bill pale.

Length (skin), 4.05; wing, 1.95; tail, 1.50; tarsus, .70; bill, .80.

HABITAT. Santa Lucia.

FAMILY MNIOTILTIDÆ.

GENUS **Mniotilta** VIEILL.

Mniotilta VIEILLOT, Analyse, p. 45 (1816).

Mniotilta varia (LINN.).

Motacilla varia LINN. Syst. Nat. I, p. 333 (1766).

Mniotilta varia GOSSE, Bds. Jam. p. 134 (1847).— LEMB. Aves Cuba, p. 68 (1850).— GUNDL. J. f. O. 1855, p. 475; *ib.* Repert. Fisico-Nat. Cuba, I, p. 232 (1865) (Cuba).— BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860) (Cuba).— ALBRECHT, J. f. O. 1862, p. 193 (Jamaica).— A. & E. NEWTON, Ibis, 1859, p. 143 (St. Croix).— BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 110 (1859) (Bahamas).— SCL. P. Z. S. 1861, p. 70 (Jamaica).— MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 293 (Jamaica).— GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 177 (1878) (Porto Rico).— CORY, Bds. Bahama I. p. 54 (1880); *ib.* Bds. Haiti & San Domingo, p. 23 (1885).— A. & E. NEWTON, Handb. Jamaica, p. 105 (1881).

Sylvicola (*Mniotilta*) *varia* BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 91 (1867) (San Domingo).

Bahama Islands and Greater Antilles. Recorded also from the Lesser Antilles.

GENUS **Compsothlypis** CAB.

Compsothlypis CABANIS, Mus. Hein. I, p. 20 (1851).

Compsothlypis americana (LINN.).

Parus americanus LINN. Syst. Nat. I, p. 190 (1766).

Sylvia americana D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 69 (1840).— A. & E. NEWTON, Ibis, 1859, p. 143 (St. Croix).

Parula americana GOSSE, Bds. Jam. p. 154 (1847).— CASS. Proc. Acad. Nat. Sci. Phila. 1860, p. 376 (St. Thomas).— GUNDL. J. f. O. 1861, p. 326 (Cuba); *ib.* 1872, p. 411 (Cuba).— ALBRECHT, J. f. O. 1862, p. 192 (Jamaica).— MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 293 (Jamaica).— GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 176 (1878) (Porto Rico).— CORY, Bds. Bahama I. p. 55 (1880); *ib.* Bull. Nutt. Orn. Club, VI, p. 151 (1881) (San Domingo); *ib.* Bds. Haiti & San Domingo, p. 24 (1885).

Bahamas and Greater Antilles; recorded from some of the Lesser Antilles.

GENUS Protonotaria BAIRD.

Protonotaria BAIRD. Bds. N. Am. p. 239 (1858).

Protonotaria citrea (BODD.).

Motacilla citrea BODD. Tab. pl. 704 (1783).

Protonotaria citrea GUNDL. J. f. O. 1861, p. 324; *ib.* 1862, p. 178; *ib.* 1872, p. 411; *ib.* Repert. Fisico-Nat. Cuba, I, p. 231 (1865) (Cuba). —BAIRD, Rev. Am. Bds. p. 173 (1864).—CORY, List Bds. W. I. p. 7 (1885).

Accidental in Cuba.

GENUS Helmitherus RAF.

Helmitherus RAFINESQUE, Journ de Phys. LXXXVIII. p. 417 (1819).

Helmitherus vermivorus (GMEL.).

Motacilla vermivora GMEL. Syst. Nat. I, p. 95 (1788).

Vermivora pennsylvanica GOSSE, Bds. Jam. p. 150 (1847).—ALBRECHT, J. f. O. 1862, pp. 194, 201 (Jamaica).— MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 293 (Jamaica).

Helinaia vermivorus LEMB. Aves Cuba, p. 35 (1850).

Helmitheros vermivorus GUNDL. J. f. O. 1855, p. 476; *ib.* 1861, pp. 326, 409 (Cuba).

Helinaia vermivora BREWER. Pr. Bost. Soc. Nat. Hist. VII. p. 307 (1860). (Cuba).

Helmitherus vermivorus GUNDL. Repert. Fisico-Nat. Cuba, I, p. 232 (1865); *ib.* J. f. O. 1872, p. 412 (Cuba).—CORY, List Bds. W. I. p. 7 (1885).

Helminthotherus vermivorus A. & E. NEWTON, Handb. Jamaica, p. 105 (1881).

Recorded from Cuba and Jamiaca.

Helmitherus swainsoni AUD.

Sylvia swainsoni AUD. Orn. Biog. II. p. 563 (1834).

Helmitherus swainsoni BAIRD. Rev. Am. Bds. p. 180 (1864).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 232 (1865); *ib.* J. f. O. 1872, p. 412 (Cuba).—CORY, List Bds. W. I. p. 7 (1885).

Helonœa swainsoni NEWTON, P. Z. S. 1879, p. 552 (Jamaica).

Helminthotherus swainsoni A. & E. NEWTON, Handb. Jamaica, p. 105 (1881).

Helinaia swainsoni MERRIAM, Auk, II. p. 377 (1885) (Jamaica).

Recorded from Cuba and Jamaica.

GENUS Helminthophila RIDGW.

Helminthophila RIDGWAY, Bull. Nutt. Orn. Club, VII, p. 53 (1882).

Helminthophila chrysoptera (LINN.).

Motacilla chrysoptera LINN. Syst. Nat. I, p. 333 (1766).
Helinaia chrysoptera BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).
Helminthophaga chrysoptera GUNDL. J. f. O. 1861, p. 326; *ib.* 1862, p. 177; *ib.* 1872, p. 411; *ib.* Repert. Fisico-Nat. Cuba, I, p. 232 (1865) (Cuba).—CORY, List Bds. W. I. p. 7 (1885).

Accidental in Cuba.

Helminthophila bachmani (AUD.).

Sylvia bachmani AUD. Orn. Biog. II, p. 483 (1834).
Helinaia bachmanii LEMB. Aves Cuba, p. 36 (1850).
Helminthophaga bachmani "CAB." GUNDL. J. f. O. 1885, p. 475; *ib.* 1861, pp. 326, 409; *ib.* Repert. Fisico-Nat. Cuba, I, p. 232 (1865) (Cuba).—CORY, List Bds. W. I. p. 7 (1885).
Helinaia bachmani BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).

Accidental in Cuba.

Helminthophila peregrina (WILS.).

Sylvia peregrina WILS. Am. Orn. IV, p. 83 (1811).
Helinaia peregrina BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).
Helminthophaga peregrina GUNDL. J. f. O. 1861, p. 326; *ib.* 1862, p. 177; *ib.* 1872, p. 412; *ib.* Repert. Fisico-Nat. Cuba, I, p. 232 (1865) (Cuba).—CORY, List Bds. W. I. p. 7 (1885).

Accidental in Cuba. Bahama Islands? A specimen in my cabinet is labelled "Bahama I."; the collector is unknown.

GENUS Dendroica GRAY.

Dendroica GRAY, Gen. Bds. App. 8 (1842).

Dendroica tigrina (GMEL.).

Motacilla tigrina GMEL. Syst. Nat. I, p. 985 (1788).
Sylvia maritima D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 70 (1840).
Certhiola maritima GOSSE, Bds. Jam. p. 87 (1847).

Rhimamphus maritimus GUNDL. J. f. O. 1855, p. 474; *ib.* 1861, p. 409 (Cuba).

Sylvicola maritima BRYANT. Pr. Bost. Soc. Nat. Hist. VII, p. 110 (1859) (Bahamas).—BREWER. Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).

Dendræca tigrina A. & E. NEWTON. Ibis, 1859. p. 144 (St. Croix).—SCL. P. Z. S. 1861, p. 71 (Jamaica).—ALBRECHT, J. f. O. 1862, p. 193 (Jamaica).—CORY, Bds. Bahama I. p. 63 (1880); *ib.* Bull. Nutt. Orn. Club, VI, p. 151 (1881); *ib.* Bds. Haiti & San Domingo, p. 25 (1885).

Dendroica trigrina GUNDL. J. f. O. 1861. p. 326 (Cuba).—MARCH. Pr. Acad. Nat. Sci. Phila. 1863, p. 293 (Jamaica).

Perissoglossa tigrina GUNDL. Repert. Fisico-Nat. Cuba. I, p. 233 (1865); *ib.* J. f. O. 1872, p. 412 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 178 (1878) (Porto Rico).—CORY, List Bds. W. I. p. 7 (1885).

Recorded from Bahama Islands, Greater Antilles, and St. Croix.

Dendroica æstiva (GMEL.).

Motacilla æstiva GMEL. Syst. Nat. I. p. 996 (1788).

Rhimamphus æstivus Bp.? GUNDL. J. f. O. 1885, p. 472 (Cuba)?—CAB. J. f. O. 1860, p. 326 (Cuba).

Sylvicola æstiva? BREWER. Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba)?—FINSCH. P. Z. S. 1870, p. 564 (Trinidad).

Dendræca æstiva? TAYLOR. Ibis, 1864, p. 81 (Trinidad).—CORY, Bds. Bahama. I. p. 56 (1880).

Cuba? and the Bahama Islands?

It is doubtful if *D. æstiva* occurs in the West Indies, as in some plumages it is difficult to distinguish from the closely allied forms which occur there.

Dendroica petechia (LINN.).

Motacilla petechia LINN. Syst. Nat. I. p. 334 (1766).

Sylvia petechia LATH. Gen. Syn. II. p. 535 (1790).—VIEILL. Ois. Am. Sept. II, p. 32, (1807).

Sylvicola æstiva GOSSE. Bds. Jam. p. 157 (1847).

Dendræca æstiva A. & E. NEWTON, Ibis, 1859. p. 143.

Dendræca petechia SCL. Cat. Am. Bds. p. 32 (1862).—ALBRECHT, J. f. O. 1862, p. 193.—GRAY, Handl. Bds. I, p. 240 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 9 (1873).—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 182 (1878).—CORY, Bds. Bahama I. p. 57 (1880); *ib.* List Bds. W. I. p. 8 (1885).—A. & E. NEWTON, Handb. Jamaica, p.

106 (1881).—RIDGW. Pr. U. S. Nat. Mus. VII, p. 172 (1884).—COUES, Key N. Am. Bds. p. 297 (1884).—SHARPE, Cat. Bds. Brit. Mus. X, p. 277 (1885).

Sylvicola petechia BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 67 (1867).

Dendræca petechia e. *jamaicensis* SUND. Oefv. K. Vet. Akad. Förh. 1869, p. 607.

Dendroica petechia CASSIN, Pr. Acad. Nat. Sci. Phila. 1860. pp. 192, 376.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863. p. 292.—BAIRD, Rev. Am. Bds. p. 199 (1864).—BD. BWR. & RIDGW. Hist. N. Am. Bds. I, p. 216 (1874).

SP. CHAR. *Male:*—Underparts bright yellow, streaked with dull rufous on the breast and sides; forehead yellowish, shading into olive green on the top of the head; a tinge of rufous on the concealed portions of the feathers on the forehead; back olive green; wings and tail brown, edged with yellowish; under surface of tail having the appearance of bright yellow, the feathers tipped with olive green; the upper surface of tail-feathers having the inner webs yellow.

Female:—Somewhat greener than the male; more yellow on the rump and tail-coverts; no rufous on the head.

Length (skin), 4.50; wing, 2.50; tail, 1.60; tarsus, .74.

HABITAT. Jamaica. Accidental in the Bahama Islands.

Dendroica petechia gundlachi.

(?) *Motacilla albicollis* GMEL. Syst. Nat. I. p. 983 (1788).

Rhimamphus æstivus CAB. J. f. O. 1855, p. 472.

Sylvicola petechia BREWER, Pr. Bost. Soc. Nat. Hist. VII. p. 307 (1860).

Dendroica albicollis CASSIN, Pr. Acad. Nat. Sci. 1860. p. 192.—LAWR Ann. N. Y. Lyc. 1860, p. 18.—GUNDL. J. f. O. 1861, p. 326.

Dendroica gundlachi BAIRD, Rev. Am. Bds. p. 197 (1864).—GUNDL. J. f. O. 1872, p. 414.

Dendroica gundlachi GUNDL. Repert. Fisico-Nat. Cuba, I, p. 234 (1865) —GRAY, Handl. Bds. I, p. 241 (1869).—SHARPE, Cat. Bds. Brit. Mus. X, p. 278 (1885).

Dendræca petechia d. *cubana* SUND. Oefv. K. Vet. Akad. Förh. 1869 p. 608.

Dendroica petechia var. *gundlachi* BD. BWR. & RIDGW. Hist. N. Am. Bds. I. p. 216 (1874).

Dendræca petechia var. *gundlachi* CORY, Bds. Bahama I. p. 58 (1880).

Dendræca petechia gundlachi COUES. Bds. Colo. Vall. p. 255 (1878).—CORY, List Bds. W. I. p. 8 (1885).

SP. CHAR. *Male:*—Lower part of throat streaked; above yellowish green; crown showing no signs of rufous, or only a faint tinge; feathers yellowish, brighter towards the bill.

Female:—Similar to the male, but somewhat paler, and showing less yellow on the tail.

Length (skin), 4.8; wing, 2.45; tail, 2.15; tarsus, .83.

HABITAT. Cuba. Accidental in the Bahama Islands.

Dendroica petechia ruficapilla.

Motacilla ruficapilla GMEL. Syst. Nat. I, p. 971 (1788).
Sylvicola ruficapilla BP. Consp. I, p. 307 (1850).
Dendroica ruficapilla BAIRD, Rev. Am. Bds. p. 201 (1864).
Dendræca ruficapilla GRAY, Handl. Bds. I. p. 240 (1869).—SHARPE, Cat. Bds. Brit. Mus. X, p. 275 (1885).
Dendroica petechia var. *ruficapilla* BD. BWR. & RIDGW. Hist. N. Am. Bds. I, p. 217 (1874).
Dendræca petechia var. *ruficapilla* LAWR. Pr. U. S. Nat. Mus. I, p. 486 (1878).
Dendræca petechia ruficapilla CORY, List Bds. W. I. p. 8 (1885).

Length, 4.75; wing, 2.6; tail, 2.10; tarsus, .82.

This form approaches very closely to *D. petechia*, but lacks the distinct rufous crown. Throat streaked heavily; the under tail-coverts are also streaked; otherwise like *D. petechia*.

HABITAT. Barbuda, Antigua, Porto Rico, and St. Thomas.

Dendroica petechia melanoptera.

Dendræca petechia var. *melanoptera* LAWR. Pr. U. S. Nat. Mus. I. p 453 (1878).
Dendræca petechia melanoptera CORY, List Bds. W. I. p. 8 (1885).
Dendræca melanoptera SHARPE. Cat. Bds. Brit. Mus. X, p. 279 (1885).

Length, 4.50; wing, 2.30; tail, 1.85; tarsus, .69.

This form resembles *petechia ruficapilla*, as would be expected, but varies in having the wing-coverts black, and it is somewhat smaller in size; the rufous streaks are narrower and darker. The female lacks the rufous crown and stripes on the under surface.

HABITAT. Guadeloupe and Dominica.

Dendroica capitalis LAWR.

Dendræca petechia c. *barbadensis* SUND. Oefv. K. Vet. Akad. Förh. 1869, p. 608.
Dendræca capitalis LAWR. Pr. Acad. Nat. Sci. Phila. 1868, p. 359.—GRAY, Handl. Bds. III, Index, p. 202 (1871).—COUES, Key N. Am. Bds. p.

297 (1884).—CORY, List. Bds. W. I. p. 8 (1885).—SHARPE, Cat. Bds. Brit. Mus. X. p. 280 (1885).

Dendroica capitalis BD. BWR. & RIDGW. Hist. N. Am. Bds. I. p. 271 (1874).

SP. CHAR. *Male:*—Top of the head dark rufous brown, extending to the nape, but not reaching the eye; upperparts greenish yellow; wings and tail brown, edged with yellow; inner webs of the tail-feathers broadly edged with bright yellow; underparts yellow, streaked with rufous brown.

Female:—Entire upper surface olive green; entire under surface pale yellow; tail as in the male.

Length (skin), 4; wing, 2.45; tail, 1.75; tarsus, .75.

HABITAT. Barbadoes.

Dendroica rufigula BAIRD.

Dendroica rufigula BAIRD. Rev. Am. Bds. p. 204 (1864).

Dendræca rufigula GRAY. Handl. Bds I. p. 241 (1869).—LAWR. Pr. U. S. Nat. Mus. I. p. 486 (1878).—CORY. List Bds. W. I. p. 8 (1885).—SHARPE, Cat. Bds. Brit. Mus. X. p. 285 (1885).

Dendroica vicilloti var. *rufigula* BD. BWR. & RIDGW. Hist. N. Am. Bds. I, p. 217 (1874).

Dendræca vicilloti rufigula COUES, Bds. Colo. Vall. p. 256 (1878).

Dendræca vicilloti (pt.) SALV. & GODM. Biol. Centr. Amer. Aves, I. p. 125 (1880).

SP. CHAR. *Male:*—Head and throat rufous brown; upper parts greenish yellow; wings and tail brown, broadly edged with yellow; underparts bright yellow, streaked with rufous on the breast and flanks; axillaries and under wing-coverts bright yellow.

Length (skin), 5; wing, 2.25; tail, 2; tarsus, .75.

HABITAT. Martinique.

Dendroica eoa (GOSSE).

Sylvicola eoa GOSSE, Bds. Jam. p. 158 (1847).—BP. Consp. I. p. 309 (1850).—ALBRECHT, J. f. O. 1862, p. 201.

Dendræca eoa SCL. P. Z. S. 1861, p. 71 (♂).—GRAY, Handl. Bds. I. p. 240 (1869).—SUND. Oefv. K. Vet. Akad. Förh. 1869, p. 609.—A. & E. NEWTON, Handb. Jamaica, p. 106 (1881).—COUES, Key N. Am. Bds. p. 297 (1884).—CORY, List Bds. W. I. p. 8 (1885).—SHARPE, Cat. Bds. Brit. Mus. X. p. 266 (1885).

Dendroica eoa BAIRD. Rev. Am. Bds. p. 195 (1864).—BD. BWR. & RIDGW. Hist. N. Am. Bds. I. p. 218 (1874).

"*Male:*—Upper parts olive, approaching to yellow on the rump; sides of head marked with a band of orange, extending from the ear to the beak, and meeting both on the forehead and on the chin. Wings (quills and coverts) blackish, with yellowish edges. Tail blackish-olive, with yellow edges; the outermost two feathers on each side have the greatest portion of the inner webs pale yellow. Underparts pale yellow. The crown, rump, tertials, belly, and under tail-coverts sparsely marked with undefined spots of pale orange.

"*Female:*—Nearly as in the male, but the deep orange is spread over the whole cheeks, chin, throat, and breast. The head and back are dusky gray, tinged with olive, and patched with the fulvous much more largely, but irregularly, as if *laid* upon the darker hue. Length, 5 inches; expanse, 7.60; wing, 2.70; tail, 1.90; rictus nearly .60; tarsus, .90; middle toe, .50. Iris dark hazel; feet horn-color; beak pale horn; culmen and tip darker." (*Gosse*, l. c.).

HABITAT. Jamaica.

Mr. Sharpe considers *D. eoa* to be a hybrid between *D. blackburniæ* and *D. petechia* or *D. æstiva*. The type specimens are in the British Museum.

Dendroica cærulescens (GMEL.).

Motacilla cærulescens GMEL. Syst. Nat. I, p. 960 (1788).

Sylvia cærulescens D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 63 (1840).

Sylvicola pannosa GOSSE, Bds. Jam. p. 162 (1847).

Sylvicola canadensis GOSSE, Bds. Jam. p. 162 (1847).—SALLÉ, P. Z. S. 1857, p. 231 (San Domingo).—BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 110 (1859) (Bahamas).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).

Rhimamphus canadensis GUNDL. J. f. O. 1855, p. 473; 1861, p. 408 (Cuba).

Dendræca pannosa ALBRECHT, J. f. O. 1862, p. 193 (Jamaica).

Dendroica canadensis GUNDL. J. f. O. 1861, p. 396 (Cuba).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 293 (1863) (Jamaica).

Dendræca canadensis SCL. P. Z. S. 1861, p. 70 (Jamaica).—ALBRECHT, J. f. O. 1862, p. 193.

Dandroica cærulescens BAIRD, Rev. Am. Bds. p. 186 (1864) (?).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 233 (1865); *ib.* J. f. O. 1872, p. 413 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 179 (1878) (Porto Rico).

Sylvicola (Dendræca) canadensis BRYANT. Pr. Bost. Soc. Nat. Hist. XI, p. 91 (1867).

Dendræca cærulescens CORY, Bds. Bahama I. p. 58 (1880); *ib.* Bull. Nutt. Orn. Club, VI, p. 151 (1881); *ib.* Bds. Haiti & San Domingo, p. 26

(1885); *ib.* List Bds. W. I. p. 8 (1885).—A. & E. Newton, Handb. Jamaica, p. 106 (1881).—Tristram, Ibis, 1884, p. 168.

Common in the Bahamas and Greater Antilles in winter.

Dendroica coronata (Linn.).

Motacilla coronata Linn. Syst. Nat. I, p. 333 (1766).

Sylvia coronata D'Orb in La Sagra's Hist. Nat. Cuba, Ois. p. 60 (1840).

Rhimamphus coronatus Gundl. J. f. O. 1855, p. 473; *ib.* 1861, p. 408 (Cuba).

Sylvicola coronata Gosse, Bds. Jam. p. 155 (1847).—Sallé, P. Z. S. 1857, p. 231 (San Domingo).—Bryant, Pr. Bost. Soc. Nat. Hist. VII, p. 110, (1859) (Bahamas).—Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).—Albrecht, J. f. O. 1862, p. 201 (Jamaica).

Dendroica coronatus Gundl. J. f. O. 1861, p. 326 (Cuba).

Dendroica coronata March, Pr. Acad Nat. Sci. Phila. 1863, p. 292 (Jamaica).—Gundl. Repert. Fisico-Nat. Cuba, I. p. 233 (1865) (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 180 (1878) (Porto Rico).

Sylvicola (*Dendræca*) *coronata* Bryant, Pr. Bost. Soc. Nat. Hist. XI, p. 91 (1867).

Dendræca coronata Cory, Bds. Bahama I. p. 59 (1880); *ib.* Bull. Nutt. Orn. Club, VI. p. 151 (1881); *ib.* Bds. Haiti & San Domingo, p. 30 (1885); *ib.* List. Bds. W. I. p. 8 (1885).—A. & E. Newton, Handb. Jamaica, p. 109 (1881).

Common in winter in the Bahamas and Greater Antilles.

Dendroica maculosa (Gmel.).

Motacilla maculosa Gmel. Syst. Nat. I, p. 984 (1788).

Sylvia maculosa D'Orb in La Sagra's Hist. Nat. Cuba, Ois. p. 72 (1840).

Rhimamphus maculosus Gundl. J. f. O. 1855, p. 474 (Cuba).

Sylvicola maculosa Bryant, Pr. Bost. Soc. Nat. Hist. VII, p. 110 (1859) (Bahamas).—Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).

Dendroica maculosa Gundl. J. f. O. 1861, p. 326; *ib.* 1872, p. 415; *ib.* Repert. Fisico-Nat. Cuba, I, p. 234 (1865) (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 183 (1878) (Porto Rico).

Dendræca maculosa Cory, Bds. Bahama I. p. 62 (1880); *ib.* Bds. Haiti & San Domingo, p. 29 (1885); *ib.* List Bds. W. I. p. 8 (1885).

Occasional winter visitant in the Greater Antilles and the Bahama Islands.

Dendroica cærulea (WILS.).

Sylvia cærulea WILS. Am. Orn. II. p. 141 (1810).
Dendroica cærulea GUNDL. J. f. O. 1861, p. 326; *ib.* 1872, p. 414; *ib.* Repert. Fisico-Nat. Cuba, I, p. 234 (1865) (Cuba).—BAIRD, Rev. Am. Bds. p. 191 (1864).
Rhimamphus cæruleus GUNDL. J. f. O. 1862, p. 177 (Cuba).
Dendrœca cærulea CORY, List Bds. W. I. p. 8 (1885).

Cuba. No other West India Record.

Dendroica pennsylvanica (LINN.).

Motacilla pennsylvanica LINN. Syst. Nat. I, p. 333 (1766).
Sylvicola icterocephala BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 110 (1859) (Bahamas).
Dendroica pennsylvanica BAIRD, Rev. Am. Bds. p. 191 (1864).
Dendrœca pennsylvanica CORY, Bds. Bahama I. p. 62 (1880); *ib.* List Bds. W. I. p. 8 (1885).

Bahama Islands in winter.

Dendroica striata (FORST.).

Muscicapa striata "FORSTER, Phil. Trans. LXII, 383."
Sylvia striata LEMB. Aves Cuba, p, 33 (1850).
Rhimamphus striatus GUNDL. J. f. O. 1855. p. 475; *ib.* 1861, p. 409 (Cuba).
Sylvicola striata BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 110 (1859) (Bahamas).—BREWER *ib.* p. 307 (Cuba).
Dendroica striatus GUNDL, J. f. O. 1861, p. 326 (Cuba).
Dendroica striata GUNDL. Repert. Fisico-Nat. Cuba. I, p. 234 (1865): *ib.* J. f. O. 1872, p. 414 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII. p. 181 (1878) (Porto Rico).
Dendrœca striata CORY, Bds. Bahama I. p. 61 (1880); *ib.* List Bds. W. I. p. 8 (1885).—A. & E. NEWTON, Handb. Jamaica, p. 106 (1881).

Common in winter in the Bahama Islands. Recorded from Cuba, Porto Rico, and Jamaica.

Dendroica pharetra (GOSSE).

Sylvicola pharetra GOSSE, Bds. Jam. p. 163 (1857).—BP. Consp. I. p. 309 (1850).—OSBURN, Zool. 1859, p. 6660.
Dendrœca pharetra SCL. P. Z. S. 1861, p. 71.—ALBRECHT, J. f. O. 1862, p. 193.—GRAY, Handl. Bds. I, p. 241 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 9 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 106 (1881).—COUES, Key N. Am. Bds. p. 297 (1884).—CORY, List Bds. W. I. p. 8 (1885).—SHARPE, Cat. Bds. Brit. Mus. X, p. 332 (1885).

Dendroica pharetra BAIRD, Rev. Am. Bds. p. 192 (1864).—BD. BWR. & RIDGW. Hist. N. Am. Bds. I, p. 220 (1874).

SP. CHAR. Male :—Entire plumage dull white and black, in general appearance resembling *Mniotilta varia* at the first glance. Throat white, the feathers narrowly tipped with black, giving a dotted appearance; the black marking becomes heavier on the breast and belly; top of head heavily streaked with black and white; rump and upper tail coverts olive brown; wings and tail brown, showing a faint olive tinge; under wing-coverts white.

Female:—Similar to the male, but duller in coloration; less black on the under surface; more brown on the lower back, rump and tail.

Length (skin), 4.40; wing, 2.30; tail, 2.05; tarsus, .72.

HABITAT. Jamaica.

Dendroica blackburniæ (GMEL.).

Motacilla blackburniæ GMEL. Syst. Nat. I, p. 977 (1788).

Sylvicola blackburniæ BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 110 (1859) (Bahamas).

Dendroica blackburniæ BAIRD, Rev. Am. Bds. p. 189 (1864).

Dendrœca blackburniæ CORY, Bds. Bahama I. p. 60 (1880); *ib.* List Bds. W. I. p. 8 (1885).

Accidental in the Bahama Islands in winter.

Dendroica dominica (LINN.).

Motacilla dominica LINN. Syst. Nat. I, p. 334 (1766).

Sylvia pensilis D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 65 (1840).

Sylvicola pensilis GOSSE, Bds. Jam. p. 156 (1847).—SALLE, P. Z. S. 1857, p. 231 (San Domingo).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).—ALBRECHT, J. f. O. 1862, p, 201 (Jamaica).

Rhimamphus pensilis GUNDL. J. f. O. 1885, p. 474; *ib.* 1861, p. 408 (Cuba).

Dendroica superciliosa GUNDL. J. f. O. 1861, p. 326 (Cuba).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 293 (Jamaica).

Dendroica dominica GUNDL. Repert. Fisico-Nat. Cuba, I, p. 235 (1865); *ib.* J. f. O. 1872, p. 415 (Cuba).—BRACE, Pr. Bost. Soc. Nat. Hist. XIX, p. 240 (1877) (Bahamas).—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 184 (1878) (Porto Rico).

Dendrœca dominica CORY, Bds. Bahama I. p. 65 (1880); *ib.* Bds. Haiti & San Domingo, p. 27 (1885); *ib.* List Bds. W. I. p. 8 (1885).—A. & E. NEWTON, Handb. Jamaica, p. 106 (1881).

Common in winter in the Bahamas and Greater Antilles; possibly resident in Jamaica.

Dendroica adelaidæ BAIRD.

Dendroica adelaidæ BAIRD, Rev. Am. Bds. p. 212 (1864).
Sylvicola (Dendræca) adelaidæ BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 251 (1866).
Dendræca adelaidæ SUND. Oefv. K. Vet. Akad. Förh. Stockh. 1869, p. 615.—GRAY, Handl. Bds. II, p. 241 (1870).—SCL. & SALV. Nom. Avium Neotr. p. 9 (1873).—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 185 (1878).—RIDGW. Pr. U. S. Nat. Mus. V, pp. 525, 526 (1883).—COUES, Key N. Am. Bds. p. 297 (1884).—CORY, List Bds. W. I. p. 8 (1885).—SHARPE, Cat. Bds. Brit. Mus. X, p. 306 (1885).
Dendroica graciæ var. *adelaidæ* BD. BREW. & RIDGW. Hist. N. Am. Bds. I, p. 220 (1874).

Sp. CHAR. *Male:*—"Entire upper parts, and sides of neck as far forward as the eyes, uniform ash gray. Beneath, including edge of bend of wing, bright yellow; lining of wings, axillaries, and crissum, white. A broad yellow line from bill to eye, with the eyelids yellow; forehead and sides of vertex black. A black loral line. Wings with two conspicuous white bands; the quills and tail-feathers blackish, edged externally with whitish, internally with purer white. There lateral tail-feathers with a quadrate terminal white patch on inner web. Bill black. Legs pale yellowish." (BAIRD, l. c.).

Length, 4.7; wing, 2.1; tail, 2.05; tarsus, .65.

HABITAT. Porto Rico.

Dendroica adelaidæ delicata.

Dendræca adelaidæ SCL. P. Z. S. 1871, p. 269.—ALLEN, Bull. Nutt. Orn. Club, V, p. 166 (1880).
Dendræca adelaidæ delicata RIDGW. Pr. U. S. Nat. Mus. V, p. 525 (1882).—CORY, List Bds. W. I. p. 8 (1885).
Dendræca delicata SHARPE, Cat. Bds. Brit. Mus. X, p. 306 (1885).

General appearance of *D. adelaidæ*, but differs in having brighter yellow on the superciliaries and underparts; the yellow superciliary line is broader, occupying the whole forehead except a narrow central line, and the back more plumbeous; it is also slightly larger.

Length, 4.45; wing, 2.10; tail, 2.10; tarsus, .70.

HABITAT. Santa Lucia.

Dendroica virens (GMEL.).

Motacilla virens GMEL. Syst. Nat. I, p. 985 (1788).
Rhimamphus virens GUNDL. J. f. O. 1855, p. 474 (Cuba).
Sylvicola virens BREWER Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).

Dendroica virens BAIRD, Rev. Am. Bds. p. 182 (1864).—GUNDL. J. f. O. 1861, p. 426; *ib.* 1872, p. 413; *ib.* Repert. Fisico-Nat. Cuba, I, p. 233 (1865) (Cuba).

Dendræca virens LAWR. Pr. U. S. Nat. Mus. I, p. 54 (1878) (Dominica).—A. & E. NEWTON, Handb. Jamaica, p. 106 (1881).—CORY, List Bds. W. I. p. 8 (1885).

Recorded from Cuba, Jamaica, and Dominica.

Dendroica kirtlandi BAIRD.

Sylvicola kirtlandi BAIRD, Ann. N. Y. Lyc. V, p. 217 (1852).

Dendroica kirtlandii BAIRD, Rev. Am. Bds. p. 206 (1864).

Dendræca kirtlandi CORY, Bds. Bahama I. p. 66 (1880); *ib.* List Bds. W. I. p. 8 (1885).

Common in winter at New Providence and Andros, Bahama Islands; probably ranges as far south as Long Island; no other record. It is possible that it is resident and breeds in the Bahama Islands.

Dendroica pityophila (GUNDL.).

Sylvicola pityophila GUNDL. Ann. N. Y. Lyc. 1855, p. 160.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1859).

Rhimamphus pityophilus GUNDL. J. f. O. 1857, p. 240.

Dendroica pityophila BAIRD, Rev. Am. Bds. p. 208 (1864).—BD. BWR. & RIDGW. Hist. N. Am. Bds. I, p. 221 (1874).

Dendræca pityophila GUNDL. Repert. Fisico-Nat. Cuba, I, p. 234 (1865).—GRAY, Handl. Bds. I, p. 241 (1869).—COUES, Key N. Am. Bds. p. 297 (1884).—CORY, List Bds. W. I. p. 8 (1885).—SHARPE, Cat. Bds. Brit. Mus. X, p. 322 (1885).

SP. CHAR. *Male:*—"Above, including sides of head and neck, uniform plumbeous gray; the forehead, vertex and loral region olive green; chin and fore-neck bright yellow, extending on the middle of jugulum, and bordered by black streaks towards lower part of neck, most conspicuous on sides of breast. Beneath dull white, the insides of wings more ashy, the flanks something like the back. Two dull ashy white bands across the wing-coverts; the quill- and tail-feathers edged with paler ash than the ground color. Lateral tail-feather with a whitish patch on the inner web, running forward to a point along the shaft, including the whole web at the end; second feather with a more restricted patch of the same." (BAIRD, l. c.)

Length, 4.50; wing, 2.30; tail, 2.20; tarsus, .56; bill, .45.

HABITAT. Cuba.

Dendroica vigorsii (AUD.).

Sylvia pinus WILS. Am. Orn. III, p. 25 (1811) (Nec LATHAM, 1790).
Sylvicola (*Dendræca*) *pinus* BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 67 (1867).
Dendræca pinus CORY, Bds. Bahama I. p. 69 (1880); *ib.* Bds. Haiti & St. Domingo, p. 33 (1885); *ib.* List. Bds. W. I. p. 8 (1885).
Sylvia vigorsii AUD. Orn. Biog. I, 153 (1835).
Dendroica vigorsii STEJN. Auk, II, 343 (1885).

Common in winter in the Bahama Islands and San Domingo; breeds in San Domingo.

Dendroica discolor (VIEILL.).

Sylvia discolor VIEILL. Ois. Am. Sept. II, p. 37 (1807).—LEMB. Aves Cuba, p. 32 (1850) (Cuba).
Sylvicola discolor GOSSE, Bds. Jam. p. 159 (1847).—BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 110 (1859) (Bahamas); *ib.* X, p. 251 (1866) —BREWER, *ib.* VII, p. 307 (1860) (Cuba).
Rhimamphus discolor GUNDL. J. f. O. 1855, p. 474 (Cuba).
Dendræca discolor A. & E. NEWTON, Ibis, 1859, p. 144 (St. Croix); *ib.* Handb. Jamaica, p. 106 (1881).—SCL. P. Z. S. 1861, p. 71 (Jamaica).— CORY, Bds. Bahama I. p. 64 (1880); *ib.* Bull. Nutt. Orn. Club, VI, p. 151 (1881); *ib.* Bds. Haiti & San Domingo, p. 31 (1885); *ib.* List Bds. W. I. p. 8 (1885).
Dendroica discolor GUNDL. J. f. O. 1861, p. 326; *ib.* 1872, p. 416; *ib.* Repert. Fisico-Nat. Cuba, I, p. 235 (1865) (Cuba).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 293 (Jamaica).—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 186 (1878) (Porto Rico).
Sylvicola (*Dendræca*) *discolor* BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 91 (1867).

Winters in the Bahamas, the Greater and some of the Lesser Antilles.

Dendroica palmarum (GMEL.).

Motacilla palmarum GMEL. Syst. Nat. I, p. 951 (1788).
Sylvia palmarum D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 61 (1840).
Rhimamphus ruficapillus GUNDL. J. f. O. 1855, p. 473; *ib.* 1861, p. 408 (Cuba).
Sylvicola palmarum SALLÉ, P. Z. S. 1857, p. 231 (San. Domingo).—BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 110 (1859) (Bahamas).
Dendroica palmarum GUNDL. J. f. O. 1861, p. 326; *ib.* 1872, p. 415; *ib.* Repert. Fisico-Nat. Cuba, I, p. 234 (1865) (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 183 (1878) (Porto Rico)

Dendræca palmarum SCL. P. Z. S. 1861, p. 71 (Jamaica).—ALBRECHT, J. f. O. 1862, p. 93 (Jamaica).—CORY, Bds. Bahama I. p. 68 (1880).—A. & E. NEWTON, Handb. Jamaica, p. 106 (1881).

Sylvicola (*Dendræca*) *palmarum* BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 91 (1867).

Common in winter in the Bahama Islands and Greater Antilles.

Dendroica plumbea LAWR.

Dendræca plumbea LAWR. Ann. N. Y. Acad. Sci. I, p. 47 (1878); *ib.* Pr. U. S. Nat. Mus. I, p. 486 (1878).—CORY, List Bds. W. I. p. 8 (1885).—SHARPE, Cat. Bds. Brit. Mus. X, p. 333 (1885).

SP. CHAR. *Male:*—General plumage above dark plumbeous; a superciliary stripe of white from the bill; a spot of white on the lower eyelid; lores very dark brown, almost black; underparts mixed with ashy and dull white; outer tail-feather tipped with white on the inner web; next feather showing a smaller spot; next two narrowly tipped with white; middle and greater wing-coverts tipped with white, forming two wing-bands.

Female:—Above dark olive; underparts grayish, tinged with olive; showing a pale yellowish wash on the throat, breast and middle of the abdomen.

Length (skin), 5.20; wing, 2.45; tail, 2.25; tarsus, .72.

HABITAT. Guadeloupe and Dominica.

GENUS Leucopeza SCL.

Leucopeza SCLATER, P. Z. S. 1876, p. 14.

Leucopeza semperi SCL.

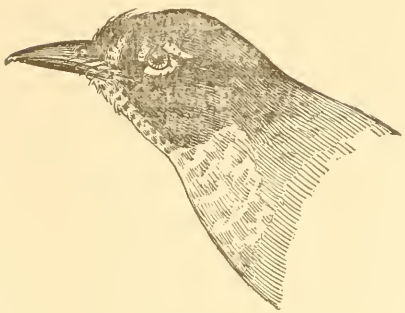
Leucopeza semperi SCL. P. Z. S. 1876, p. 14.—ALLEN, Bull. Nutt. Orn. Club, V, p. 166 (1880).—CORY, List Bds. W. I. p. 8 (1885).—SHARPE, Cat. Bds. Brit. Mus. X, p. 228 (1885).

SP. CHAR. *Male:*—General plumage above dark bluish gray; slightly brownish on lower back and rump; sides of head and ear-coverts slightly paler; throat and breast grayish white, shading into brownish on the belly; crissum, axillaries and under wing-coverts ashy gray, edged with dull white.

Length, 5.70; wing, 2.60; tail, 2.20; tarsus, .88; bill, .68.

HABITAT. Santa Lucia.

GENUS Catharopeza SCL.



Catharopeza SCLATER, Ibis, 1880, p. 73.

Catharopeza bishopi (LAWR.).

Leucopeza bishopi LAWR. Ann. N. Y. Acad. Sci. I, p. 151 (1878); *ib.* Pr. U. S. Nat. Mus. I. p. 486 (1878).—SHARPE, Cat. Bds. Brit. Mus. X, p. 228 (1885).

Catharopeza bishopi SCL. Ibis, 1880, p. 73.—LISTER, Ibis, 1880, p. 40.—CORY, List Bds. W. I, p. 8 (1885).

HABITAT. St. Vincent.

SP. CHAR. *Male*:—"The general plumage is smoky black; rather darker on the head; the sides are blackish cinereous; a circle of pure white surrounds the eye; a large roundish spot on the middle of the throat; the upper part of the breast, and the middle of the abdomen, are dull white, somewhat mixed with blackish on the throat and with cinereous on the abdomen; a very small spot on the chin, and the tips of the feathers on the upper part of the throat are dull white; the black on the upper part of the breast has the appearance of a broad band, separating the white of the throat from that of the lower part of the breast; the under tail-coverts are cinereous-black at base, ending largely with dull white; wings and tail black, the outer two tail-feathers have a small white spot, triangular in shape, on the inner webs at the end; bill black; tarsi and toes very pale yellowish-brown, perhaps much lighter colored in the living bird, nails also pale.

Length (fresh), $5\frac{3}{4}$ in.; wing, $2\frac{3}{4}$; tail, $2\frac{1}{2}$; tarsus, $\frac{7}{8}$. Two specimens marked as females do not differ in plumage from the males." (LAWR. l. c.)

HABITAT. St. Vincent.

GENUS Seiurus SWAINS.

Seiurus SWAINSON, Zool. Journ. III, p. 171 (1827).

Seiurus aurocapillus (LINN.).

Motacilla aurocapilla LINN. Syst. Nat. I, p. 334 (1766).

Sciurus aurocapillus D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 55 (1840).

Seiurus aurocapillus GOSSE, Bds. Jam. p. 152 (1847).—SALLÉ, P. Z. S. 1857, p. 321 (San Domingo).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 294 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 325 (1865) (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 175 (1878) (Porto Rico).—CORY, Bds. Bahama I. p. 70 (1880); *ib.* Bull. Nutt. Orn. Club, VII, p. 151 (1881); *ib.* Bds. Haiti & San Domingo, p. 34 (1885); *ib.* List Bds. W. I. p. 8 (1885).

Henicocichla aurocapilla GUNDL. J. f. O. 1855, p. 471; *ib.* 1861, pp. 326, 407 (Cuba).—SCL. P. Z. S. 1861, p. 70 (Jamaica).—ALBRECHT, J. f. O. 1862, p. 192 (Jamaica).

Siurus aurocapillus A. & E. NEWTON, Ibis, 1859, p. 142 (St. Croix); *ib.* Handb. Jamaica, p. 105 (1881).

Enicocichla aurocapillus BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860) (Cuba).

Ranges in winter throughout the West Indies.

Seiurus noveboracensis (GMEL.).

Motacilla noveboracensis GMEL. Syst. Nat. I, p. 958 (1788).

Siurus nævius LAWR. Pr. U. S. Nat. Mus. I, p. 233 (Antigua), p. 453 (Guadeloupe), p. 54 (Dominica) (1878).

Sciurus sulfurascens D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 57 (1840) (Cuba).

Seiurus noveboracensis GOSSE, Bds. Jam. p. 151 (1847).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 294 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 235 (1865); *ib.* J. f. O. 1872, p. 416 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 175 (1878) (Porto Rico).—CORY, Bds. Bahama I. p. 71 (1880); *ib.* Bull. Nutt. Orn. Club, VI, p. 151 (1881); *ib.* List Bds. W. I. p. 8 (1885).

Seiurus gossii BP. Consp. I, p. 306 (1850) (Jamaica).

Henicocichla sulphurascens GUNDL. J. f. O. 1855, p. 471; *ib.* 1861, p. 407 (Cuba).

Henicocichla noveboracensis GUNDL. J. f. O. 1855, p. 471; *ib.* 1861, pp. 326, 407 (Cuba).—SCL. P. Z. S. 1861, p. 70 (Jamaica).—ALBRECHT, J. f. O. 1862, p. 192 (Jamaica).

Siurus noveboracensis A. & E. NEWTON, Ibis, 1859, p. 145 (St. Croix); *ib.* Handb. Jamaica, p. 105 (1881).

Enicocichla noveboracensis BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860) (Cuba).

The present species ranges in winter throughout the West Indies.

Seiurus motacilla (VIEILL.).

Turdus motacilla VIEILL. Ois. Am. Sept. II, p. 9 (1807).
Henicocichla motacilla CAB. J. f. O. 1857, p. 240 (Cuba).—GUNDL. J. f. O. 1861, p. 326 (Cuba).
Henicocichla major CAB. J. f. O. 1857, p. 240 (Cuba).
Enicocichla major BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860) (Cuba).
Henicocichla ludoviciana SCL. P. Z. S. 1861, p. 70 (Jamaica).—ALBRECHT, J. f. O. 1862, p. 192 (Jamaica).
Seiurus ludovicianus GUNDL. Repert. Fisico-Nat. Cuba, I, p. 236 (1865); *ib.* J. f. O. 1872, p. 417 (Cuba).
Siurus motacilla LAWR. Pr. U. S. Nat. Mus. I, pp. 233, 486 (1878) (Antigua).
Seiurus motacilla CORY, Bds. Haiti & San Domingo, p. 35 (1885); *ib.* List Bds. W. I. p. 8 (1885).

Winters in the Greater Antilles; probably occurs throughout the West Indies.

GENUS Geothlypis CABAN.

Geothlypis CABANIS, Arch. für Naturg. I, pp. 316, 449 (1847).

Geothlypis formosa (WILS.).

Sylvia formosa WILS. Am. Orn. III, p. 85 (1811).
Myiodioctes formosus LEMB. Aves Cuba, p. 37 (1850) (Cuba).—GUNDL. J. f. O. 1861, p. 326 (Cuba).
Myiotomus formosus GUNDL. J. f. O. 1855, p. 472 (Cuba).
Setophaga formosa BREWER, Pr. Bost. Soc. Nat. Hist. VII, p, 307 (1860) (Cuba).
Oporornis formosus GUNDL. Repert. Fisico-Nat. Cuba, I, p. 236 (1865); *ib.* J. f. O. 1872, p. 417 (Cuba).—CORY, List Bds. W. I. p. 8 (1885).
Geothlypis formosa RIDGW. Pr. U. S. Nat. Mus. VIII, p. 354 (1885).

Accidental in Cuba.

Geothlypis rostrata BRYANT.

Geothlypis rostratus BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 67 (1866).—CORY, Bds. Bahama I. p. 73 (1880); *ib.* List Bds. W. I. p. 9 (1885).
Trichas rostrata GRAY, Handl. Bds. I, p. 242 (1869).
Geothlypis trichas var. *rostrata* BD. BWR. & RIDGW. Hist. N. Am. Bds. I, p. 296 (1874).
Geothlypis rostrata SHARPE, Cat. Bds. Brit. Mus. X, p. 355 (1885).

SP. CHAR. *Male:*—Above bright olive green; a broad band of black passing from the sides of the neck, over the forehead, including the eye,

and extending to the nostril, just touching the lower mandible, the black bordered posteriorly with pearl gray, becoming deeper gray upon the crown; underparts bright yellow, the flanks shaded with olive; quills brown, with the outer webs olive green; third primary longest.

Female:—The black band wanting; plumage slightly paler; a pale ash-colored line from over the eye to sides of the neck; crown showing a trace of brown; otherwise resembling the male.

Length, 5.50; wing, 2.70; tail, 2.36; tarsus, .92; bill, .72.

HABITAT. New Providence, Bahama Islands.

Geothlypis trichas (LINN.).

Turdus trichas LINN. Syst. Nat. I, p. 293 (1766).

Sylvia trichas D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 67 (1840) (Cuba).

Trichas marylandica GOSSE, Bds. Jam. p. 148 (1847).—BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 110 (1859) (Bahamas).

Trichas marilandica BREWER, Pr. Bost. Soc. Nat. Hist. VII. p. 307 (1860) (Cuba).

Geothlypis trichas GUNDL. J. f. O. 1855, p. 472; *ib.* 1861, p. 326; *ib.* 1872, p. 417; *ib.* Repert. Fisico-Nat. Cuba, I, p. 236 (1865) (Cuba).—SCL. P. Z. S. 1861, p. 70 (Jamaica).—ALBRECHT, J. f. O. 1862, p. 192 (Jamaica).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 293 (Jamaica).—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 187 (1878) (Porto Rico).—CORY, Bds. Bahama I. p. 72 (1880); *ib.* Bull. Nutt. Orn. Club, VI, p. 131 (1881); *ib.* Bds. Haiti & San Domingo, p. 36 (1885); *ib.* List Bds. W. I. p. 9 (1885).—A. & E. NEWTON, Handb. Jam. p. 106 (1881).

Common in winter in the Bahama Islands and Greater Antilles.

GENUS Microligea CORY.

Microligea CORY, Auk, I, p. 290 (1884).

Microligea palustris CORY.

Ligea palustris CORY, Auk, I, p. 1 (1884); *ib.* Bds. Haiti & San Domingo, p. 38 (1885).—SHARPE, Cat. Bds Brit. Mus. X, p. 349 (1885).

Microligea palustris CORY, Auk, I, p. 290 (1884); *ib.* List Bds. W. I. p. 9 (1885).

SP. CHAR. *Male:*—Crown, nape and upper portion of back slaty plumbeous; rest of back and upper surface of wings and tail yellowish green; throat, breast and sides grayish plumbeous, showing a dull olive tinge on the sides, darkest on the flanks; the middle of the throat showing a slight grayish tinge, and the middle of the belly showing distinctly white; outer webs of primaries and most of the secondaries yellowish green, giving the wing a general greenish appearance; inner webs of primaries dark brown, apparently slate color in some lights; under surface of tail dull green; eyelids white.

Female:—In general appearance like the male, but differs from it by underparts being tinged with olive, mixing with the gray, and top of the head green, showing the slate color faintly.

Length, 5.50; wing, 2.50; tail, 2.50; tarsus, .75; bill, .50; middle toe, .40.

HABITAT. San Domingo.

GENUS Teretistris CABAN.

Teretistris CABANIS, "J. f. O. 1855, p. 475."

Teretistris fernandinæ (LEMB.).

Anabates fernandinæ LEMB. Aves Cuba, p. 66 (1850).—GUNDL. Journ. Bost. Soc. Nat. Hist. VI, p. 317 (1852).

Helmitherus blanda BP. Consp. I, p. 314 (1850).

Teretistris fernandinæ CAB. J. f. O. 1855, p. 475.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 236 (1865); *ib.* J. f. O. 1872, p. 418.—GRAY, Handl. Bds. I, p. 384 (1869).—CORY, List Bds. W. I. p. 9 (1885).—SHARPE, Cat. Bds. Brit. Mus. X, p. 368 (1885).

Teretristis fernandinæ BAIRD, Rev. Am. Bds. p. 234 (1864).—SCL. & SALV. Nom. Avium Neotr. p. 11 (1873).

SP. CHAR. *Male:*—Top of the head bright olive green, this color extending to the upper back; rest of upper parts ash-gray; throat and sides of the head bright yellow, tinged with olive on the cheeks and ear-coverts; eyelids bright yellow; rest of underparts ash-gray, whitish on the middle of the belly, and tinged with olive on the flanks and sides; a slight tinge of olive on the carpus; under wing-coverts white, slightly tinged with yellow.

Length, 4.85; wing, 2.20; tail, 1.95; tarsus, .75.

HABITAT. Western part of Cuba.

Teretistris fornsi GUNDL.

Teretistris fornsi GUNDL. Ann. N. Y. Lyc. Nat. Hist. VI, p. 274 (1858).—BREWER. Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—ALBRECHT,

J. f. O. 1861, p. 211; *ib.* J. f. O. 1862, p. 177; *ib.* Repert. Fisico-Nat. Cuba. I, p. 236 (1865); *ib.* J. f. O. 1872, p. 418.—CORY. List Bds. W. I. p. 9 (1885).—SHARPE, Cat. Bds. Brit. Mus. X, p. 368 (1885).

Teretristis fornsii BAIRD, Rev. Am. Bds. p. 235 (1864).

Teretistris fornsii GRAY, Handl. Bds. I, p. 384 (1869).

Teretristis fornsi SCL. & SALV. Nom. Avium Neotr. p. 11 (1873).

SP. CHAR. *Male:*—Top of head and upper parts pale ash-gray; a faint indication of yellow on the extreme forehead; sides of the head (including the eye), throat, and underparts yellow, becoming pale on the belly and ashy white on the flanks and crissum; wings and tail pale brown, the feathers pale edged; a tinge of yellow on the carpus and under wing-coverts.

Female:—Similar to the male, but less yellow on the underparts; ashy white on the belly.

Length, 4.60; wing, 2.15; tail, 1.95; tarsus, .72.

HABITAT. Eastern portion of Cuba.

GENUS Sylvania NUTTALL.

Sylvania "NUTT. Man. Orn. 1832."

Sylvania mitrata (GMEL.).

Motacilla mitrata GMEL. Syst. Nat. I, p. 977 (1788).

Setophaga mitrata D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 89 (1840) (Cuba).—BREWER, Pr. Bost. Soc. Nat. Hist. VII. p. 307 (1860) (Cuba).

Myioctomus mitratus GUNDL. J. f. O. 1855, p. 472; *ib.* 1861, p. 407 (Cuba); *ib.* 1872, p. 419 (Cuba).

Myiodioctes mitratus GUNDL. J. f. O. 1861, p. 326; *ib.* 1872, p. 419; *ib.* Repert. Fisico-Nat. Cuba, I, p. 237 (1865) (Cuba).—A. & E. NEWTON, Handb. Jam. p. 106 (1881).

Sylvania mitratus CORY, List Bds. W. I. p. 9 (1885).

Accidental in Cuba and Jamaica.

GENUS Setophaga SWAINS.

Setophaga SWAINSON, Zool. Journ. III, p. 360 (1827).

Setophaga ruticilla (LINN.).

Muscicapa ruticilla LINN. Syst. Nat. I, p. 326 (1766).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 87 (1840) (Cuba).

Setophaga ruticilla GOSSE, Bds. Jam. p. 164 (1874) (Jamaica).—GUNDL. J. f. O. 1855, p. 472; *ib.* 1861, p. 326; *ib.* 1872, p. 419; *ib.* Repert. Fisico-Nat. Cuba, I, p. 237 (1865) (Cuba).—SALLE, P. Z. S. 1857,

p. 231 (San Domingo).—A. & E. NEWTON, Ibis, 1859, p. 144 (St. Croix).—BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 111 (1859) (Bahamas).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).—SCL. P. Z. S. 1861, p. 72 (Jamaica).—ALBRECHT, J. f. O. 1862, p. 194 (Jamaica).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 293 (Jamaica).—LAWR. Ann. Lyc. N. Y. VIII, p. 97 (1864) (Sombrero Is.); *ib.* Pr. U. S. Nat. Mus. I, p. 486 (1878) (Lesser Antilles).—SCL. P. Z. S. 1876, p. 14 (Sta. Lucia).—GUNDL. Anal Soc. Esp. Hist. Nat. VII, p. 187 (1878) (Porto Rico).—CORY, Bds. Bahama I. p. 75 (1880); *ib.* Bull. Nutt. Orn Club, VI, p. 151 (1881) (Haiti); *ib.* Bds. Haiti & San Domingo, p. 40 (1885).—A. & E. NEWTON, Handb. Jam. p. 106 (1881).—TRISTRAM, Ibis, 1884, p. 168 (San Domingo).

The present species probably occurs in most of the West India Islands. It is recorded from the Bahamas, all of the Greater, and some of the Lesser Antilles.

FAMILY CŒREBIDÆ.

GENUS **Certhiola** SUNDEV.

Certhiola SUNDEV. Vet. Akad. Handl. Stockholm, p. 99 (1835).

Certhiola bahamensis REICH.

Parus bahamensis SELIGIN, Samml. ausl. Vögel. III, p. t. xviii (1753).
Certhia bahamensis BRISS. Orn. III, p. 620 (1760).
Certhia flaveola var. **β**. LINN. Syst. Nat. I, p. 187 (1766).
Certhia flaveola var. . GMEL. Syst. Nat. I, p. 479 (1788).
Certhia flaveola var. **γ**. LATH. Ind. Orn. I, p. 297 (1790).—BECHST. Lath. Uebers. IV, p. 188.
Certhiola flaveola GRAY, Gen. Bds. I, p. 102 (1844).—BP. Consp. I, p 402 (1850).—BAIRD, Bds. N. Am. p. 924 (1858).
Certhiola bahamensis REICH. Handb. I, p. 253 (1853).—CASSIN, Pr. Acad. Nat. Sci. Phila. 1864, p. 271.—CAB. J. f. O. 1865, p. 412.—BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 66 (1866).—GRAY, Handl. Bds. I, p. 120 (1869).—FINSCH, Verhandl. Zool. Botan. Gesells. Wien. XXI, p. 752 (1871).—SCL. & SALV. Nom. Avium Neotr. p. 16 (1873).—BD. BWR. & RIDGW. Hist. N. Am. Bds. I, p. 428 (1874).—CORY, Bds. Bahama I. p. 76 (1880); *ib.* List Bds. W. I. p. 9 (1885).—COUES, Key N. Am. Bds. p. 317 (1884).—RIDGW. Pr. U. S. Nat. Mus. VIII, pp. 27, 29 (1885).
Certhiola bairdii CAB. J. f. O. 1865, p. 412.

SP. CHAR. *Male:*—Above black, with a slight grayish tinge; a superciliary line of white, from bill to nape; throat ashy white; breast bright yellow, extending upon the sides of the abdomen, and shading into gray upon the flanks; crissum white, wing-feathers slightly edged with dull white; a white patch at the base of the primaries, forming a bar on the wings; edge of the carpus bright yellow; tail, color of the back, tipped with white, wanting upon the middle, and largest upon the two outer feathers.

Female:—Slightly paler than the male, but otherwise resembling it.

Length, 4.50; wing, 2.60; tail, 1.90; tarsus; 70; bill, .54.

HABITAT. Bahamas.

Certhiola portoricensis (BRYANT).

Cœreba flaveola VIEILL. Ency. Méth. 1820, p. 611.

Nectarinia flaveola MORITZ. Wiegm. Arch. für. Naturg. II, p. 387 (1836).

Certhiola flaveola SCL. Cat. Am. Bds. p. 54 (1862) (St. Thomas).—TAYLOR, Ibis, 1864, p. 166.—CASSIN, Pr. Acad. Nat. Sci. Phila. 1864, p. 271.

Certhiola flaveola var. *portoricensis* BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 252 (1866).

Certhiola sti. thomæ SUND. Consp. 1869, p. 621 (?).

Certhiola portoricensis SUND. Consp. 1869, p. 622.—FINSCH, Verhandl. Zool. Botan. Gesells. Wien, XXI, p. 760 (1871).—SCL. & SALV. Nom. Avium Neotr. p. 16 (1873).—BD. BWR. & RIDGW. Hist. N. Am. Bds. I, p. 427 (1874).—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 216 (1878).—RIDGW. Pr. U. S. Nat. Mus. VII, p. 172 (1884); *ib.* VIII, pp. 28, 29 (1885).—CORY, List Bds. W. I. p. 9 (1885).

SP. CHAR.—Back dark slate color, showing an olive tint in some specimens; in others the back almost black; rump olive yellow; breast color of rump, showing more olive on the abdomen: throat gray; second, third, fourth, and fifth primaries banded at base with white, sixth primary nearly so, rest of primaries showing white on the webs at the base.

Length (skin), 4.25; wing, 2.30; tail, 1.45; tarsus, .72; bill, .50.

HABITAT. Porto Rico and St. Thomas.

Certhiola sancti-thomæ RIDGW.

Certhiola portoricensis FINSCH, Verhandl. Zool. Botan. Gesells. Wien, XXI, p. 760 (1871).—BAIRD, Am. Nat. VII, p. 672 (1873) and authors from St. Thomas and St. John.

Certhiola sancti-thomæ RIDGW. Pr. U. S. Nat. Mus. VIII, pp. 28, 29 (1885).—CORY, List Bds. W. I. p. 9 (1885).

SP. CHAR.—Very close to *C. portoricensis*, but separated from it by having the back lighter slate color, and throat lighter gray.

Measurements practically the same as those of *C. portoricensis*.

HABITAT. St. Thomas, and St. John, W. I.

This is a somewhat doubtful species, and requires further investigation. Specimens in my collection from St. John and St. Thomas show the dark back of *C. portoricensis*, while others show the gray tinge, representing *sancti-thomæ*. I have also a specimen of *C. portoricensis* which has the back nearly as gray as any from St. Thomas. A specimen from St. Thomas also agrees with one from Port Rico, in the color of the throat, although other specimens have the throat lighter. It is possible that some of the specimens in question may be incorrectly labelled, as several of them were obtained by purchase.

Certhiola bananivora (GMEL.).

Motacilla bananivora GMEL. Syst. Nat. I, p. 951 (1788).

Certhiola—(?) SALLÉ, P. Z. S. 1857, p. 233.

Certhiola bananivora BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 95 (1865).—BD. BWR. & RIDGW. Hist. N. Am. Bds. I, p. 427 (1874).—CORY, Bds. Haiti, and San Domingo, p. 41 (1885); *ib.* List Bds. W. I. p. 9 (1885).

Certhiola clusiæ "HERZ VON WURTLEMB. HARTL. Naumannia, II, Heft. 2, p. 56 (1852) (sine descr.)."—FINSCH, Verhandl. Zool. Botan. Gesells. Wien, XXI, p. 771 (1871).—Scl. & Salv. Nom. Avium Neotr. p. 17 (1873).—CORY, Bull. Nutt. Orn. Club, VI, p. 151 (1881).

SP. CHAR. *Male*:—Upper surface, including head, cheeks, wings, and tail, dull black; a superciliary white stripe, extending from the base of the upper mandible to the nape; throat dark slaty color; underparts bright yellow, becoming grayish olive upon the sides and thighs; rump and carpus bright yellow; an edging of white upon the basal portion of primaries on the outer webs, very narrow upon the first, the whole nearly concealed by the coverts, forming a narrow white wing-band; bill and feet black; tail slightly tipped with dull white on the outer feathers.

The sexes are similar.

Length, 4.40; wing, 2.40; tail, 1.60; tarsus, .60; bill, .50.

HABITAT. San Domingo.

Young birds of this species have the superciliary stripe yellow, and the back more gray. Specimens in my collection show all

intermediate stages, from the yellow one, some having it half white, half yellow, while others show but a faint spot of yellow in front of the eye. The color of the throat also varies slightly at different seasons and ages.

Certhiola bartholemica (SPARRM.).

Certhia bartholemica SPARRM. Mus. Carls. fasc. III, No. 57 (1788).—BECHST. Lath. Uebers. I, p. 611. (1793).

Cœreba flaveola VIEILL. Ency. Méth. p. 611 (1820).

Certhiola bartholemica REICH. Handb. Scans. p. 253 (1853).—SUNDEV. Kütisk. Framställ. in K. Vet. Akad. Handl. II, No. 3. p. 10 (1857); *ib.* Vet. Akad. Förh. 1869, p. 622.—FINSCH, Verhandl. Zool. Botan. Gesells. Wien, XXI, p. 763 (1872).—SCL. & SALV. Nom. Avium Neotr. p. 16 (1873).—BD. BWR. & RIDGW. Hist. N. Am. Bds. I. p. 428 (1874).—CORY, List. Bds. W. I. p. 9 (1885).—RIDGW. Pr. U. S. Nat. Mus. VIII. pp. 28, 30 (1885).

SP. CHAR.—Forehead dull gray; throat dark plumbeous; superciliary stripe extending backward, commencing above the eye; white marking near base of primaries very small; lower part of rump dull yellowish green.

Length (skin), .395; wing, 2.35; tail, 1.70.

HABITAT. St. Bartholemew.

Certhiola saccharina LAWR.

Certhiola saccharina LAWR. Am. N. Y. Acad. Sci. I, p. 151 (1878); *ib.* Pr. U. S. Nat. Mus. I. p. 487 (1878).—CORY, List. Bds. W. I. p. 9 (1885).—RIDGW. Pr. U. S. Nat. Mus. VIII, pp. 28, 30. (1885).

SP. CHAR.—Throat very dark slate color, much darker than in *C. portoricensis*, and extending lower; underparts brighter yellow; the white marking on the primaries somewhat heavier; rump yellowish green; back very dark slate color, not quite as dark as in *C. portoricensis*.

Length (skin), .4; wing, 2.30; tail, 1.50; tarsus, .58.

HABITAT. St. Vincent, and Grenada.

Certhiola flaveola (LINN.).

Certhiola flaveola LINN. Syst. Nat. I, p. 187 (1766).—GMEL. Syst. Nat. I, p. 497 (1788).—VIEILL. Ency. Méth. p. 611 (1820).—DENNY, P. Z. S. 1847, p. 39.

Certhiola flaveola GOSSE, Bds. Jam. p. 84 (1847).—SCL. Cat. Am. Bds. p. 54 (1862).—ALBRECHT, J. f. O. 1862, p. 196.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 296.—GRAY, Handl. Bds. I, p. 120 (1869).

—FINSCH, Verhandl. Zool. Botan. Gesells. Wien, XXI, p. 756 (1871). —SCL. & SALV. Nom. Avium Neotr. p. 16 (1873).—BD. BWR. & RIDGW. Hist. N. Am. Bds. I, p. 427 (1874).—A. & E. NEWTON, Handb. Jamaica, p. 103 (1881).—CORY, List. Bds. W. I. p. 9 (1885). —RIDGW. Pr. U. S. Nat. Mus. VIII, pp. 28-30 (1885).

SP. CHAR.—General appearance of *C. portoricensis*, but having the throat much darker gray. Upper parts of breast showing an olive tinge; the yellow of the breast is duller than in *C. portoricensis*, and somewhat ochraceus; outer webs of primaries heavily marked with white, extending fully half their length, inner webs showing much white at the base, and narrowly edged with the same; secondaries broadly marked with white on the inner webs; rump yellow, as bright as the belly.

Length (skin), 4; wing, 2.32; tail, 1.60; tarsus, .58.

HABITAT. Jamaica.

Certhiola newtoni BAIRD.

Certhiola flaveola A. & E. NEWTON, Ibis, 1859, p. 67.—SCL. Cat. Am. Bds. p. 54 (1862) (St. Croix).—SUNDEV. Vet. Akad. Förh. 1869, p. 623 (St. Croix).

Certhiola bartholemica FINSCH, Verhandl. Zool. Botan. Gesells. Wien. XXI, p. 763 (1871) (St. Croix).—SCL. & SALV. Nom. Avium Neotr. p. 16 (1873) (St. Croix).—CORY, List Bds. W. I. p. 9 (1884).

Certhiola newtoni BAIRD, Am. Nat. VII, p. 611 (1873)—BD. BWR. & RIDGW. Hist. N. Am. Bds. I, p. 427 (1884).—RIDGW. Pr. U. S. Nat, Mus. VIII, pp. 28-30 (1885).

SP. CHAR.—Similar to *C. flaveola*. "White patch of wing more quadrate on each quill; transverse; not tapering off gradually and uniformly behind; not reaching the shaft on outer primary. Breast without ochraceous; rump olivaceous yellow; the color different from that of the belly." (BD. BWR. & RIDGW. Hist. N. Am. Bds.)

HABITAT. St. Croix.

Certhiola dominicana TAYLOR.

Certhiola dominicana TAYLOR, Ibis, 1864, p. 167.—GRAY, Handl. Bds. I. p. 120 (1869).—FINSCH, Verhandl. Zool. Botan. Gesells. Wien, XXI, p. 787 (1871).—SCL. & SALV. Nom. Avium Neotr. p. 17 (1873).—BD. BWR. & RIDGW. Hist. N. Am. Bds. I, p. 428 (1874).—LAWR. Pr. U. S. Nat. Mus. I, p. 487 (1878).—CORY, List. Bds. W. I. p. 9 (1885).—RIDGW. Pr. U. S. Nat. Mus. VIII, p. 30 (1885).

Certhiola frontalis BAIRD, MSS. Bd. Bwr. & Ridgw. Hist. N. Am. Bds. I, p. 428 (1874).

SP. CHAR.—Superciliary stripe lacking, or extremely indistinct in front of the eye; frontal region dull grayish black; back smoky black, sometimes showing a slight olive tinge when held in the light; throat dark slate color; lower part of rump showing olive green; a delicate penciling of white on the outer webs of primaries.

Length (skin), 4.85; wing, 2.50; tail, 1.60; tarsus, .65.

HABITAT. Dominica Antigua, Barbuda, Nevis, St. Eustatius, Guadeloupe, and Saba.

C. sundevalli Ridgw. is probably a phase of plumage of this species, the yellow superciliary stripe changing with age, as in *C. bananivora*.

Certhiola barbadensis BAIRD.

Certhiola martinicana SCL. P. Z. S. 1874, p. 174.

Certhiola barbadensis BAIRD, Am. Nat. VII, p. 612 (1873).—BB. BWR. & RIDGW. Hist. N. Am. Bds. I, p. 428 (1874).—CORY, List Bds. W. I. p. 9 (1885).—RIDGW. Pr. U. S. Nat. Mus. VIII, pp. 28, 30 (1886).

SP. CHAR.—"Upper part of throat slate black, bordered laterally by a gray rictal patch, and below by a yellowish white patch; separating the black from the yellow of the jugulum. Upper parts as in *C. dominicana*, but superciliary stripe broadest and most sharply defined anteriorly." (RIDGW. Pr. U. S. Nat. Mus. VIII, p. 28 (1885.)

Length, 3.75; wing, 2.40; tail, 1.75.

HABITAT. Barbadoes.

Certhiola martinicana REICH.

Certhia martinicana s. *saccharivora* BRISS. Orn. III, p. 611 (1860).

Certhia flaveola var. β. LINN. Syst. Nat. I. p. 187 (1766).—GMEL. Syst. Nat. I. p. 479 (1788).

Certhiola martinicana REICH. Handb. I, p. 252 (1853).—CASSIN, Pr. Acad. Nat. Sci. Phila. 1864, p. 271.—CAB. J. f. O. 1865, p. 412.—GRAY, Handl. Bds. I, p. 120 (1869).—FINSCH, Verhandl. Zool. Botan. Gesells. Wien, XXI, p. 788 (1871).—SCL. P. Z. S. 1871, p. 269.—SCL. & SALV. Nom. Avium Neotr. p. 17 (1873).—BD. BWR. & RIDGW. Hist. N. Am. Bds. I, p. 428 (1874).—LAWR. Pr. U. S. Nat. Mus. I, p. 487 (1878).—ALLEN, Bull. Nutt. Orn. Club, V. p. 166 (1880).—CORY, List Bds. W. I. p. 9 (1885).—RIDGW. Pr. U. S. Nat. Mus. VIII, pp. 28-30 (1885).

Certhiola albigula BP. Compt. Rend. 1854, p. 259.—TAYOR, Ibis, 1864, p. 167.—NEWTON, Zool. Record, 1864, p. 76.

SP. CHAR.—Sides of the throat grayish black; a patch of white on the middle of the throat to breast; underparts bright yellow, a tinge of

olive on the abdomen; lower rump narrowly banded with olive green; upper parts dull slate color; wing-coverts sometimes slightly tipped with white.

Length (skin), 4.15; wing, 2.28; tail, 1.60; tarsus, .64. Another specimen: Length (skin), 4.35; wing, 2.33; tail, 1.70; tarsus, 68.

HABITAT. Santa Lucia and Martinique.

C. finschi Ridgw. is probably a phase of plumage of this species. Some specimens from Martinique in my collection have the superciliary stripe yellow, and also show yellow on the throat. The locality given where the type specimen of *C. finschi* was taken is, as Mr. Ridgway suggests, undoubtedly incorrect. The same variation in coloring on account of age and season is shown in the San Domingo species *C. bananivora*.

Certhiola atrata LAWR.

Certhiola atrata LAWR. Am. N. Y. Acad. Sci. I, p. 150 (1878); *ib.* Pr. U. S. Nat. Mus. I, p. 487 (1878).—LISTER, Ibis, 1880, p. 40.—CORY, List. Bds. W. I. p. 9 (1885).—RIDGW. Pr. U. S. Nat. Mus. VIII pp. 28, 30 (1885).

SP. CHAR.—Entire plumage dull black; a tinge of olive is perceptible on the underparts, and on the rump.

Length (skin), 4.05; wing, 2.35; tail, 1.50; tarsus, .56.

HABITAT. St. Vincent and Grenada.

Mr. Ridgway expresses the opinion that this is perhaps a melanotic variety of *C. saccharina*.

GENUS Cœreba VIEILL.

Cœreba VIEILLOT. Ois. Am. Sept. 1807.

Cœreba cyanea (LINN.).

Certhia cyanea LINN. Syst. Nat. I, p. 188 (1766).

Certhia cyanogastra LATH. Ind. Orn. I, p. 295 (1790).

Cœreba cyanea VIEILL. Ois. Dos. pls. 41, 42, 43, et Gal. Ois. pl. 176 (1820-26).—MAX. Beitr. III, p. 761 (1831).—BP. Consp. I, p. 399 (1850).—THIENEM. J. f. O. 1857, p. 152.—BURM. Syst. Ueb. III, p. 150.—SCL. Cat. Am. Bds. p. 52 (1862).—GRAY, Handl. Bds. I, p. 116 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 16 (1873).—BD. BWR. & RIDGW. Hist. N. Am. Bds. I, p. 425 (1874).—CORY, List Bds. W. I. p. 9 (1885).

Cœreba cyanea D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 124 (1840).—LEMB. Aves Cuba. p. 131 (1850).

Arbelorhina cyanea CAB. in Schomb. Guian. III, p. 675 (1848); *ib.* J. f. O. 1856, p. 98; *ib.* 1874, p. 139.—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 291 (1865).—BREWER, Pr. Bost. Soc. Nat. Hist. VIII, p. 306 (1860).

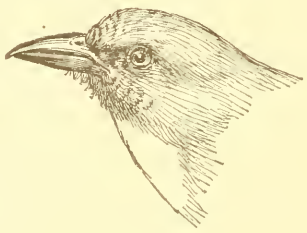
SP. CHAR. *Male:*—Top of head bright pale blue; a stripe of black passing from the upper mandible and encircling the eye; sides of the head, lower back, and entire underparts dark purplish blue, wings and upper back black; inner webs of primaries and secondaries bright yellow; sides and flanks greenish.

Female:—Entire upper parts bright green; underparts green, the shafts of the feathers showing dull white, giving a finely pencilled appearance to the throat and breast; central portion of belly showing a pale yellowish tinge.

Length (skin), 4; wing, 2.60; tail, 1.30; tarsus, .50; bill, 50.

Dr. Gundlach writes me that this species is abundant in many portions of the Island of Cuba.

GENUS Glossiptila SCL.



Glossiptila SCLATER, P. Z. S. 1856, p. 269.

Glossiptila ruficollis (GMEL.).

Motacilla campestris LINN. Syst. Nat. I, p. 329 (1766).
Tanagra ruficollis "GMEL. Syst. Nat. II."
Tachyphonus rufigularis LAFR. Rev. Zool. 1846, p. 320.
Tanagrella ruficollis GOSSE, Bds. Jam. p. 236 (1847).—GRAY, Gen. Bds. III, App. p. 17 (1849).—BP. Consp. I, p. 236 (1850).
Pyrrhulagra ruficollis BP. Consp. I, p. 493 (1850) (excl. syn.).
Neornis cærulea HARTL. Nachtr. z. Verz. Mus. Brem. p. 8 (descr. nulla).
Glossiptila ruficollis SCL. P. Z. S. 1856, p. 269.—ALBRECHT, J. f. O. 1862, p. 196.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 296.—BAIRD, Rev. Am. Bds. I, p. 163 (1884).—GRAY, Handl. Bds. I, p. 120 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 17 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 104 (1881).—CORY, List Bds. W. I. p. 9 (1885).

SP. CHAR. *Male:*—General plumage dull blue; a stripe of dull black from the bill to the eye, showing slightly on the forehead; a large patch of rufous on the throat; quills and tail dark brown, feathers edged with blue; bill black; feet horn color.

Female:—Top of head bluish gray, shading into grayish olive on the back; wings edged with pale brown; underparts gray, faintly streaked; tail brown.

Length (skin), 5; wing, 3; tail, 1.75; tarsus, .58.

HABITAT. Jamaica.

GENUS Chlorophanes REICH.

Chlorophanes "REICH. Handb. p. 234 (1853)."

Chlorophanes atricapilla (VIEILL.).

Certhia spiza var.? GMEL. Syst. Nat. I, p. 476 (1788).
Cœreba atricapilla VIEILL. Nouv. Dict. XIV, p. 50.
Cœreba spiza MAX. Beitr. III, p. 771 (1831).
Cœreba atricapilla BP. Consp. I, p. 400 (1850).
Dacnis atricapilla SCL. Contr. Orn. p. 108 (1851).
Chlorophanes atricapilla "REICH. Handb. p. 234 (1853)."—SCL. Cat. Am. Bds. p. 52 (1862).—BAIRD, Rev. Am. Bds. p. 163 (1864).—GRAY, Handl. Bds. I, p. 118 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 16 (1873) (Cuba).—CORY, List Bds. W. I. p. 9 (1885).
Dacnis spiza CAB. Mus. Hein. I, p. 95 (1850).—BURM. Syst. Ueb. III, p. 152
Nectarina mitrata LICHT. Doubl. p. 15.

SP. CHAR. *Male:*—Head and cheeks black, rest of plumage, including throat, bright bluish green; quills and tail dark brown, edged with greenish; under surface of wing steel gray.

Female:—Entire plumage light green, brightest on the back, and palest on the underparts; under surface of wing dull white.

Length (skin), 5; wing, 2.75; tail, 2; tarsus, .75.

A male bird of this species in my cabinet is labelled Cuba, and Messrs. Sclater and Salvin (l. c.) record it from there. It is probable that if the localities given are correct, the specimens in question were escaped cage birds.

FAMILY HIRUNDINIDÆ.

GENUS Progne BOIE.

Progne BOIE, Isis, 1826, p. 971.

Progne dominicensis (GMEL.).

Hirundo dominicensis GMEL. Syst. Nat. I, p. 1025 (1788).—VIEILL. Ois. Am. Sept. p. 59 (1807).

Hirundo albiventris VIEILL. Nouv. Dict. Hist. Nat. XIV, p. 533 (1817).

Progne dominicensis BOIE, Isis, 1826, p. 971.—GOSSE. Bds. Jam. p. 69 (1847).—BP. Consp. I, p. 337 (1850).—ALBRECHT, J. f. O. 1862, p. 194.—MARCH, Pr. Acad. Nat Sci. Phila. 1863. p. 295.—TAYLOR, Ibis, 1864, p. 166.—BAIRD, Rev. Am. Bds. p. 279 (1864).—GUNDL. J. f. O. 1872, p. 419; *ib.* Anal. Soc. Esp. Hist. Nat. VII. p. 196 (1878).—SCL. & SALV. Nom. Avium Neotr. p. 14 (1873).—LAWR. Pr. U. S. Nat. Mus. I, p. 487 (1878).—LISTER. Ibis, 1880, p. 40.—A. & E. NEWTON, Handb. Jamaica. p. 107 (1881).—CORY, Bds. Haiti & San Dominigo, p. 44 (1885); *ib.* List Bds. W. I. p. 10 (1885).—SHARPE, Cat. Bds. Brit. Mus. X, p. 176 (1885).

Hirundo (Progne) dominicensis BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 94 (1866).

Progne subis. var. *dominicensis* BD. BWR. & RIDGW. Hist. N. Am. Bds. I, p. 328 (1874).

SP. CHAR. *Male:*—Entire upper surface, throat, and sides steel blue, showing purplish reflections in some lights; rest of underparts white; quills and tail dark brown, the feathers having a faint bluish tinge on the outer webs; crissum dull white; bill and feet black.

Female:—Upper surface as in the male: throat and sides ashy brown; otherwise resembling the male.

Length, 7; wing, 5.60; tail, 3.10; tarsus, .50; bill, .50.

HABITAT. San Domingo and Antilles.

Progne subis (LINN.).

Hirundo subis LINN. Syst. Nat. p. 192 (1758).

Hirundo purpurea LINN. Syst. Nat. I, p. 344 (1766).

Progne purpurea D'ORB. in La Sagra's Hist. Nat Cuba, Ois. p. 94 (1840).—GUNDL. J. f. O. 1856, p. 3; *ib.* 1861, p. 328 (Cuba).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860) (Cuba).

Progne cryptoleuca BAIRD, Rev. Am. Bds. p. 277 (1864).—GUNDL. J. f. O. 1872, p. 431.—CORY, List Bds. W. I. p. 10 (1885).

Progne subis var. *cryptoleuca* BD. BWR. & RIDGW. Hist. N. Am. Bds. I, p. 322 (1874).

HABITAT. Cuba.

GENUS Petrochelidon CABAN.

Petrochelidon CABANIS, Mus Hein. I, 1850-51, p. 47.

Petrochelidon fulva (VIEILL.).

Hirundo fulva VIEILL. Ois. Am. Sept. I, p. 62 (1807).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 295.

Cecaopsis fulva BOIE, Isis, 1828, p. 315.

Hirundo melanogaster DENNY. P. Z. S. 1847, p. 38.

Hirundo pœciloma GOSSE, Bds. Jam. p. 64 (1847).—OSBORN, P. Z. S. 1865, p. 63.

Hirundo coronata LEMB. Aves Cuba, p. 45 (1850).—GUNDL. Journ. Bost. Soc. Nat. Hist. VII, p. 318 (1852).

Herse fulva BP. Consp. I, p. 341 (1850).

Petrochelidon fulva CAB. Mus. Hein. I. p. 47 (1850).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860).—SCL. Cat. Am. Bds. p. 40 (1862).—ALBRECHT, J. f. O. 1862, p. 194.—BAIRD, Rev. Am. Bds. p. 291 (1864).—GRAY, Handl. Bds. I, p. 71 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 14 (1873).—GUNDL. J. f. O. 1874, p. 133; *ib.* Anal. Soc. Esp. Hist. Nat. VII. p. 198 (1878).—A. & E. NEWTON, Handb. Jamaica, p. 107 (1881).—CORY, Bull. Nutt. Orn. Club. VI, p. 152 (1881); *ib.* Bds. Haiti & San Domingo. p. 47 (1885); *ib.* List Bds. W. I. p. 10 (1885).—SHARPE, Cat. Bds. Brit. Mus. X, p. 195 (1885).

Petrochelidon pœciloma BAIRD. Rev. Am. Bds. p. 292 (1864).—GRAY, Handl. Bds. I, p. 71 (1869).—GUNDL. J. f. O. 1874, p. 311.

Hirundo (Petrochelidon) fulva BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 252 (1866).

SP. CHAR. *Male*:—Throat and sides of the breast pale rufous brown, the color passing around the neck in a narrow line at the nape; belly and crissum dull white, the latter showing a rufous tinge; top of the head bluish black, the color nearly encircling the eye; forehead and rump dark rufous brown; back bluish black, streaked with white; wings and tail dark brown; bill and feet black.

The sexes are apparently similar.

Length, 4.70; wing, 4; tail, 1.85; tarsus, .40; bill, .27.

HABITAT. Antilles.

GENUS Tachycineta CABAN.

Tachycineta CABANIS, Mus. Hein. I, p. 48 (1850).

Tachycineta bicolor (VIEILL.).

Hirundo bicolor VIEILL. Ois. Am. Sept. I, p. 61 (1807).—CORY, List Bds. W. I. p. 10 (1885).

Tachycineta bicolor GUNDL. J. f. O. 1856, p. 4; *ib.* 1861, p. 330 (Cuba); *ib.* 1874, p. 113 (Cuba).—CORY, Bds. Bahama I. p. 80 (1880).—SHARPE, Cat. Bds. Brit. Mus. X, p. 117 (1885).

Petrochelidon bicolor BREW. Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860) (Cuba).

Accidental in Cuba and Bahama Islands.

Tachycineta euchrysea (GOSSE).

Hirundo euchrysea GOSSE, Bds. Jam. p. 68 (1847).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 295.—SCL. & SALV. Nom. Avium Neotr. p. 14 (1873).—CORY, List Bds. W. I. p. 10 (1885).—SHARPE, Cat. Bds. Brit. Mus. X, p. 170 (1885).

Hersc euchrysea BP. Bonsp. I, p. 34 (1850).

Petrochelidon euchrysea SCL. P. Z. S. 1861, p. 72; *ib.* Cat. Am. Bds. p. 39 (1862).—ALBRECHT, J. f. O. 1862, p. 194.

Callichelidon euchrysea BAIRD, Rev. Am. Bds. p. 304 (1864).—GRAY, Handl. Bds. I, p. 72 (1869).—A. & E. NEWTON, Handb. Jamaica, p. 107 (1881).

SP. CHAR. *Male:*—Entire upper surface including head bright golden green; a slight bluish tinge perceptible on the forehead, when held in the light; underparts white; wings and tail brown, showing a tinge of bronzy green on the upper surface.

Female similar to male.

Length (skin), 4.50, wing, 4.25; tail, 2.25.

HABITAT. Jamaica.

Tachycineta sclateri (CORY).

Hirundo euchrysea (var. *dominicensis?*) BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 95 (1866).

Callichelidon euchrysea var. *dominicensis* GRAY, Handl. Bds. I, p. 72 (1869).

Hirundo sclateri CORY, Auk, I, p. 2 (1884); *ib.* Bds. Haiti & San Domingo, p. 45 (1855); *ib.* List. Bds. W. I. p. 10 (1855).—SHARPE, Cat. Bds. Brit. Mus. X, p. 171 (1885).

SP. CHAR.—Above bright bluish green, showing a golden color in some lights, becoming decidedly blue on the forehead; upper surface of wings and tail showing a tinge of dull blue, brightest on the tail; underparts pure white; primaries brown; bill and legs very dark brown.

The sexes are similar.

Length, 5; wing, 4.60; tail, 2.

HABITAT. San Domingo.

GENUS Chelidon FORST.

Chelidon FORSTER, Syn. Cat. Brit. Bds. p. 55 (1817).

Chelidon erythrogastra (BODD.).

Hirundo erythrogastra "BODD. Tabl. P. E. 45 (1873)."—CORY, List. Bds. W. I. p. 10 (1885).—SHARPE, Cat. Bds. Brit. Mus. X, p. 137 (1885).
Hirundo americana LEMB. Aves Cuba, p. 44 (1850).
Hirundo rufa GUNDL. J. f. O. 1855, p. 3; *ib.* 1861, p. 328 (Cuba).—BREW. Pr. Bost. Soc. Nat. Hist. VII. p. 306 (1860).
Hirundo horreorum A. & E. NEWTON, Ibis, 1859. p. 66 (St. Croix); *ib.* Handb. Jam. p. 107 (1881).—SUNDV. Oefv. K. Vet. Alcad. p. 584 (1869) (St. Bartholemew).—GUNDL. J. f. O. 1872, p. 431 (Cuba).—LAWR. Pr. U. S. Nat. Mus. I, p. 455 (1878) (Guadeloupe).—CORY, Bds. Bahama I. p. 78 (1880).

Recorded from Bahama Islands, Greater Antilles, St. Croix and Guadeloupe, and St. Bartholemew.

GENUS Callichelidon BRYANT.

Callichelidon (BRYANT, MSS.) BAIRD, Rev. Am. Bds. p. 303 (1864).

Callichelidon cyaneoviridis (BRYANT).

Hirundo cyaneoviridis BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 111 (1859).—BAIRD, Rev. Am. Bds. p. 303 (1864).—SALV. Ibis, 1874, p, 307.—CORY, Bds. Bahama I. p. 79 (1880); *ib.* List Bds. W. I. p. 10 (1885).
Callicheldon cyaneoviridis GRAY, Handl. Bds. I, p. 72 (1869).—BD. BWR. & RIDGW. Hist. N. Am. Bds. I. p. 327 (1874).
Tachycineta cyaneoviridis SHARPE, Cat. Bds. Brit. Mus. X, p. 121 (1885).

SP. CHAR. *Male*:—Above velvet green, shading into steel blue, with purple reflections upon the rump and wings; a black stripe from the nostrils to the eye; underparts pure white; tail forked, the inner webs of the outer feathers edged with dull white.

Female:—Resembles the male, but the plumage much duller, and showing traces of dusky; bill and feet black.

Length, 6.40; wing, 4.40; tail, 3.10; tarsus, .42; bill, .15.

HABITAT. Bahamas.

Genus Clivicola FORST.

Clivicola FORST. Syn. Cat. Brit. Bds. 55 (1817).

Clivicola riparia (FORST.).

Hirundo riparia LINN. Syst. Nat. I, p. 192 (1758).—LEMB. Aves Cuba, p. 47 (1850).
Cotyle riparia Gundl. J. f. O. 1856, p. 5; *ib.* 1861, p. 330; *ib.* 1874, p. 114 (Cuba).—BREW. Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860) (Cuba) A. & E. NEWTON, Handb. Jamaica, p. 107 (1881).—CORY, List Bds. W. I. p. 10 (1885).

Cuba; Jamaica; probably wanders throughout the Antilles.

SOME BIRDS OF ARIZONA.

BY EDGAR A. MEARNS.

(Assistant Surgeon, U. S. A.)

ZONE-TAILED HAWK. *Buteo abbreviatus* CABAN.

MEXICAN BLACK HAWK. *Urubitinga anthracina* (LICHT.) LAFR.)

My apology for associating the histories of two birds belonging to widely different genera is that much doubt and some confusion exists in the minds of ornithologists concerning the identity and status as North American birds of the two species under consideration.

The first notice of the Zone-tailed Hawk was from the pen of Cabanis, in 1848.* It was described and figured by Sclater, in 1858, as *Buteo zonocercus*, which name continued in vogue until Sharpe† reverted to Cabanis's original *B. abbreviatus;* and Mr. D. G. Elliot subsequently gave a handsome figure of it in his 'Illustrations of Birds of North America'. It was first taken within the United States by Dr. J. G. Cooper, who shot the specimen described in his 'Birds of California,' on the 23d of February, 1862, thirty miles north of San Diego, California, and five from the coast; but Dr. Coues first reported its capture in the United States, in the 'Proceedings' of the Philadelphia Academy, in 1866, he having taken a specimen on the Gila River, in Arizona, on September 24, 1864. The description of the adult Zone-tailed Hawk, by Mr. Ridgway, in 'North American Birds,' was based on a specimen taken by Dr. Coues, in the month of August, on the Hassayampa River, in Arizona. When the great work on North American birds, by Baird, Brewer and Ridgway, was published, in 1874, *Buteo abbreviatus* was still known as a bird of the United States only through the published accounts of Drs. Coues and Cooper, and was regarded as a very rare straggler over our border into Southern California and Arizona; but Mr. Brewster

* But Gray's *Buteo albonotatus* (Isis, 1847, p. 323) has been doubtfully referred here.

† Catalogue of Birds in the British Museum, Vol. I, p. 163.

extended its known North American range into Texas, in 1879, and described its nest and eggs, taken in Comal Co., in that State, by Mr. Werner. Later in the same year, Mr. F. Stephens described its breeding habits, as observed by him on the Gila River, in New Mexico. These records, to which reference will be made further on, give it quite an extensive breeding range across our southern border.

Mr. N. C. Brown noted its presence in Southwestern Texas, in the 'Nuttall Bulletin,' in 1882, and again recorded it from that State in 'The Auk' for April, 1884. Mr. Brewster, in Vol. VIII of the 'Bulletin of the Nuttall Ornithological Club,' described three specimens, taken at Tucson, Arizona, by Mr. F. Stephens, who ascertained that it breeds in that locality.

It is apparent, from the above data, embracing all of the records accessible to me in this remote quarter of the globe, that the status of *Buteo abbreviatus* as a bird of the United States is established beyond question; but with *Urubitinga anthracina* the case is different.

The Mexican Black Hawk's right to a place in the avifauna of the United States rests solely upon the authority of Mr. H. W. Henshaw, which I consider to be a very good foundation indeed; but as doubt has arisen respecting the accuracy of his statement that he had twice seen *Urubitinga anthracina* alive in Arizona, and that Captain Bendire had taken eggs believed to belong to this species at Tucson, Arizona, I suppose that this Hawk properly belongs in the category of challenged species in the list of American birds north of Mexico.

Mr. Henshaw's notice reads as follows: "Captain Bendire writes me that in 1872 he found this hawk breeding in Arizona, and obtained the nest and eggs. The bird was supposed by him to be the *Buteo zonocercus*, but has since been ascertained to be this species. It thus has a good claim to a place in our fauna, and may indeed be not uncommon in the southern part of the Territory, since two individuals were seen by us during the past season. While riding one day a short distance from Camp Bowie, one of these birds sailed past within a few feet, affording me an excellent opportunity for its identification. On a second occasion, while passing through a narrow cañon, about sixty miles north of Camp Lowell, another flew out from a large cottonwood, on one of the lower limbs of which it had been perching; it was

certainly not more than a dozen feet from my head. In each instance, the narrow white band across the tail, with the size and colors generally, establish its identity beyond a question. The flight is easy and powerful."

Upon the above authority and the same author's original announcement of the discovery, published in the 'American Sportsman' earlier in the same year (1875), the name of this splendid rapacious bird was enrolled upon our catalogues of North American birds. Nearly a decade had elapsed since this account, without any further advices of the occurrence of the Mexican Black Hawk in North America north of Mexico, when Mr. William Brewster wrote (Bulletin of the Nuttall Ornithological Club, Vol. VIII, 1883, p. 30) as follows: "Dr. Coues took a Zone-tailed Hawk on the Gila River, Sept. 24, 1864, and this, so far as I know [overlooking the specimen which furnished Mr. Robert Ridgway with the text for his description of the adult of this species in 'North American Birds,' Vol. III, 1874, p. 272], is the only identified Arizona specimen which has been previously announced. I cannot help thinking, however, that the bird which Captain Bendire found breeding in Arizona in 1872 really belonged to this species, as he at first supposed, and not to *Urubitinga anthracina*, as afterwards surmised by Mr. Henshaw. Nor is it improbable that the Black Hawks seen by the latter gentleman near Camp Bowie were also referable here."

This is clearly a case where "the doctors disagree"; but my residence in Arizona has enabled me to decide it. In the first place, what respecting the authenticity of Mr. Henshaw's record? The sagacity of that talented author and field collector is too well known to require comment; and the circumstantial manner in which he tells his experience, together with the fact that he took the pains to preface his article with an elaborate description of the species, which he tells us was "kindly furnished by Mr. Ridgway, who examined, for the purpose, a very large *suite* of specimens in the collection of the Smithsonian,"* and the circumstance that he immediately published an announcement of his discovery in the 'American Sportsman,' and again refers to it in his "Introductory Remarks" (page 141) as among the important results of his last season's work in Arizona, all go to show how

* The description, slightly altered and enlarged, was afterwards published in that author's 'Studies of the American Falconidæ,' pp. 170, 171.

positive was his belief that the Black Hawks seen by him in different parts of Arizona were *Urubitinga anthracina;* and, on reading his article, after forming the acquaintance of both these Hawks, I have not the slightest doubt that he was correct, much as I envy him precedence in making the discovery.

Although the superficial resemblance in the color-pattern of these birds of different genera has occasioned error or doubt in identifying them, they may be readily distinguished by their generic characters; but, as North American specimens of *Urubitinga anthracina* have never been described, and the descriptions of the species are not always conveniently accessible, I here insert descriptions of both species for comparison, describing the nestling of *Urubitinga anthracina*, I believe, for the first time. For convenience of reference such synonyms are given as are pertinent to this paper.

Buteo abbreviatus CABAN. ZONE-TAILED HAWK.

Buteo abbreviatus CAB. Schomb. Guiana, III, 1848, p. 739.—SHARPE, Cat. Birds Brit. Mus. I. 187, p. 163.—BROWN, Bull. N. O. C. VII, No. 1, Jan. 1882, p. 42.—BREWST. Bull. N. O. C. VIII, No. 1, Jan. 1883, p. 30.—BROWN, Auk, I, No. 2, April, 1884, p. 122.

Buteo zonocercus SCL. Trans. Zool. Soc. Lond. IV, pt. VI, 1858, p. 263, pl. 59.—COUES, Proc. Acad. Nat. Sci. Phila. 1866, p. 46.—COOPER, Birds Cal. 1870, p. 479.—COUES, Key, 1872, p. 517.—RIDGW. Hist. N. Am. Birds, III, 1874, p. 273.—BREWST. Bull. N. O.C. IV, No. 2, April, 1879, p. 80.—STEPHENS, Bull. N. O. C. IV, No. 3, July, 1879, p. 189.

DESCRIPTION.—*Adult male in breeding plumage* (No. 4048, New River, Arizona, May 16, 1885; E. A. M.). General color brownish black, glossed with dull metallic colors of gold, purple, steel-blue, and green; forehead and rictus white, mixed with black hairs; feathers of crown, neck, interscapular region, and breast white at base, but the white nowhere exposed; the breast with a few lateral white spots of irregular form. Tail black, narrowly tipped with ash above, more broadly below, with a white bar crossing it transversely; broadly banded near the end with hoary plumbeous, and more narrowly about the middle with the same color, which, except on the central pair, becomes pure white upon the concealed inner webs of the feathers above, and on both webs below; a series of spots upon the inner webs indicate still another caudal bar, which is not apparent above. The brownish black primaries are banded with deep black. Lining of wings black, some of the feathers spotted laterally with ashy white. Under surface of primaries dusky plumbeous, irregularly barred and mottled with grayish white and ashy. A few of the upper tail-coverts have small, concealed, ovate

white spots; and some of the under tail-coverts are faintly tipped or spotted with the same. The form is light, the legs slender. Four outer primaries have their inner webs cut. Wing-formula, 4, 5, 3, 2, 6, 7, 1. Tail of twelve feathers; slightly rounded, the amount of graduation between the outer and central pair being 25 mm. The primaries extend 150 mm. beyond the secondary remiges. *Dimensions.**—Length, 497; alar expanse, 1240; wing, 397; tail, 230; chord of culmen and cere taken together, 34; cere, 16; culmen, 22; gape, 36; tarsus, 70; middle toe and claw, 62; toe alone, 45. The hind claw is longest, measuring 25 mm; the inner and middle claws are equal, measuring 23 mm. each; and the outer claw measures but 17 mm.

Adult female in breeding plumage (No. 4007, New River, Arizona, May 16, 1885; E. A. M. Mated with the above, and parent of egg described below). This specimen closely resembles the male just described, except that there is an additional tail-bar, plainly indicated above; and the basal white of plumage is exposed upon the breast. The tail is somewhat more rounded, the amount of graduation being 19 mm.; and the exposed tail-bars are tinged with brown. *Dimensions.*—Length, 530; alar expanse, 1315; wing, 420; tail, 235; culmen and cere taken together, 36; cere, 17; culmen (chord taken from cere), 24; gape, 40; tarsus, 77; middle toe and claw, 66; middle toe alone, 48. Claw of hallux, 27; inner claw, 26; middle claw, 23; outer claw, 19. Another adult female (No. 4050, taken on the Agua Fria at Swilling's Ranch, Arizona, May 17, 1885. E. A. M.; parent of eggs described below) does not differ appreciably. It presents the following dimensions: Length, 540; alar expanse, 1350; wing, 430; tail, 245; culmen and cere, 36; cere, 17; culmen, 25; gape, 41; tarsus, 76; middle toe and claw, 70; toe alone, 49. Claw of hallux, 27; inner claw, 25; middle claw, 22; outer claw, 17.

Young male (No. 2945, Verde River, near Fort Verde, Arizona, May 28, 1884; E. A. M.). Differs from the adult in having the exposed portion of the tail hoary brownish gray above, crossed by ten narrow black bars, the subterminal one being much the widest; upon the concealed inner webs the light color fades to white, sharply contrasted with the black bars, which do not usually correspond upon the two webs of the feather. The specimen also exhibits much more white; the feathers of the top of the head, back, scapulars, and ventral surface are pure white at base, the white bases being considerably exposed upon the nape, interscapulars, and breast. The white forms a series of lateral spots upon the webs of the scapulars and neighboring coverts, upper and lower tail-coverts, and flanks. The lining of the wings is black, with the longest feathers regularly spotted with white. Under surface of rectrices and remiges hoary grayish, fading to pure white upon the inner webs, except the terminal portion of the outer primaries, which is dark; rectrices barred with dusky, corresponding to the black dorsal bars; remiges barred or spotted with the same. *Dimensions:*—Length, 498; alar expanse, 1245; wing, 400; tail, 230; culmen and cere, 33; cere, 15; culmen, 22; gape, 36; tarsus, 66; middle toe and claw, 60; toe

* All measurements are given in millimetres.

alone, 46. Claw of hallux, 25; inner claw, 23; middle claw, 22; outer claw, 18. Graduation of tail, 18.

In all of the above specimens the soft parts were colored as follows: Irides, hazel. Bill pale blue at base, shading into plumbeous black at tip. Cere and edge of mouth greenish-yellow. Tarsi and feet lemon yellow. Claws plumbeous-black.

HABITS.—Late in the month of March, 1884, I first beheld the wide valley of the Rio Verde, with its tortuous stream winding in zigzags, bounded by a fringe of cottonwoods which, at that season, were destitute of foliage or flower. We gazed with keen interest upon the panorama before us, as the driver of our ambulance pointed out in the distance a series of low, whitewashed sheds surrounding a quadrangle and flanked by some adobe walls and haystacks, which he said was the post of Fort Verde, which was to be our station and home for an indefinite period.

The steep and rugged cañon through which we were driven was wooded with evergreens of several species, and wild flowers of bright hues were already unfolding. The manzanitas exhaled a delicious fragrance, and their pretty pink bloom heightened the effect of these handsome shrubs, which grew luxuriantly upon the hillsides. Along the beautiful stream that flows through the cañon were deciduous trees, among them ash, box-elder, and the familiar sycamore; but the wide expanse before us was apparently destitute of any vegetation save scanty grass in places, and the fringe of bare cottonwoods marking the course of the Verde River. A white bluff of limestone arose upon the opposite side of the valley, and was broken and carved into fantastic shapes by deep cañons furrowing it.

It was a dismal and desolate outlook truly, but possessed of the beauty of wild loneliness. A few days' residence at the Post more than reconciled us to our surroundings, and we soon discovered that Nature had here scattered her treasures with lavish prodigality, though veiling them from the vulgar gaze never so cleverly. Once out of 'Copper Canon,' the tired mules sped towards the Post, scattering noisy flocks of Mexican Shore Larks and scurrying troops of Gambel's Plumed Quails. As we rounded the corner of the corrals we witnessed an exhibition of the prowess of the Prairie Falcon in capturing a Pigeon. The ensuing months were spent in riding over the neighboring country, and every day brought its new discoveries in animal and plant life. The cottonwoods bloomed and then unfolded their wealth of rich

green leaves; mesquites, before scarcely noted, also leaved and bloomed, and an almost endless succession of handsome annuals sprang from the dun-colored soil, until the inflorescence was as marked as the seeming lack of vegetation at first. As the season advanced, the temperature steadily rose, until we resorted to the grateful shade of the cottonwoods beside the river from necessity, during the hottest hours of the day; and there I was not long in discovering the two black Hawks which are the subject of this writing.

One day, when examining the work of beavers beside the Verde, a Zone-tailed Hawk emerged from the dark shade of a neighboring belt of cottonwoods, moving straight towards me on motionless wings and passing within a few feet, scanning the water beneath with intent interest and paying no attention to me, but moving its head with a restless side movement. Later in the day I secured a handsome example as it flew overhead, and thereafter frequently observed them throughout the entire year beside the Verde River, where they capture lizards, frogs, fishes, and other desirable articles of raptorial diet.

I never experienced any difficulty in distinguishing between it and the melanistic form of Swainson's Hawk; when in hand, specimens may be readily diagnosed by the presence of but three emarginated outer primaries in *Buteo swainsoni*, instead of four as in *B. abbreviatus;* the color pattern of the tail, and the white base of the feathers of the latter are likewise diagnostic.

The Zone-tailed Hawk is of quite general distribution in Arizona, in the vicinity of the streams which it frequents. I have seen it near Prescott, at a considerable elevation (about 6000 feet), and at various points between there and the city of Tucson, in the southern part of the Territory, where I found it quite numerous during the past spring.

I never succeeded in detecting the nest of this Hawk in the Verde Valley, and therefore considered myself fortunate in finding two nests elsewhere during the past spring. It was with a peculiar sensation of pleasure and relief that I rode my hunting horse 'Daisy' into the cool shade of some beautiful cottonwood trees upon the banks of the New River, Arizona, on the 16th of May, 1885, and filled my canteen in the stream and drank, while my brute companion slaked her thirst after the manner of her equine kind. We had travelled nearly a thousand

miles, and were now within a few days' march of home. Few trees had rested our eyes from the glare of the tropical sun, or had shielded us from the fervid heat of its piercing rays, upon the scorched desert wilderness that we had traversed. Here was shade, and the sweet sound of a running stream, upon whose margin a handsome nosegay might have been easily plucked. Where could a traveller find a more pleasant resting-place? Soon 'Daisy' was munching sweet herbage upon the shore, and perchance was thinking of the good barley soon to be enjoyed in her snug stall in the Quartermaster's corral at Fort Verde, whilst my own thoughts had wandered to very nearly the same locality, when both were interrupted by the shrill whistle of a Hawk that came gliding towards me through the dark shadows of the dense foliage. A quick shot brought the bird to my feet. I immediately mounted my horse, intent upon discovering the location of the domicile of the Zone-tailed Hawks, whose haunts I had unwittingly invaded; crossing the stream I rode a little distance upon the opposite side and, dismounting, scanned every tree closely in quest of the nest. I was not long in discovering a bulky nest, fixed in the fork of a large cottonwood branch, across the stream, at an elevation of about twenty-five feet, and the female parent standing upon it. She gave a loud whistle and came skimming towards me, and was also shot. The nest was coarsely built of rather large sticks, with considerable concavity, lined with a few cottonwood leaves only, and contained a single egg, of a rounded-oval shape, slightly smaller at one end, in color clear bluish white, immaculate, and measuring 55 × 43 mm. On dissecting the female parent, I discovered that two would have been the full complement for this pair.

The morning following the day on which the nest just described was discovered found me encamped on the Agua Fria. The cañon through which this stream flows, below Swilling's Ranch, is one of the prettiest places I have seen in Arizona. As our march was to be a short one, there was no necessity for haste, and at any rate I could not resist the temptation to follow this enticing stream, which I did, for a distance of about two miles. The stream is here quite large, flowing over an even bed of glittering sand for a mile, occasionally dividing to join lower down, enclosing in the loop a grove of tall cottonwoods, edged with a growth of smaller willows, and fringed with arrowwood and vines.

The rocky sides of the cañon were covered with cacti of diversified shapes, from the gigantic *Cereus* to the *Echinocacti* and *Opuntiæ*. Beautiful flowers grow beneath the tall cottonwoods, which here form the handsomest groves that I have yet seen. The cañon echoed the voices of hundreds of feathered songsters, and the hum of insects and countless Hummingbirds filled the air. Flocks of beautiful White-winged Doves drank upon the sandy brink and then betook themselves to the dense foliage overhead, where their loud and mournful cooing filled the air. An occasional glimpse of the gorgeous plumage of the Saint Lucas Cardinal was obtained, and shining Phainopeplas darted after insects from the sides of the cañon

In the early morning I visited this sylvan solitude, and could not abstract myself until the morning was far spent; nor was the time idly employed. I found a pretty Thrush that was new to me, and observed the nesting habits of several rare birds.

Here I again found the Zone-tailed Hawk. A female was shot as she flew screaming at me, and the nest was soon found in a cottonwood near by. The male parent sat upon the eggs, and flew away when I got close up to the tree and shouted. It disappeared after circling over the cañon a few times and did not return while I was there, although I spent several hours in the vicinity. I climbed with vast exertion to the nest, which was built in a fork, about fifty feet from the ground, and was exactly like the first one. It was composed of sticks, lined only with green leaves of cottonwood attached to the twigs. It was rather concave, and contained two eggs, which differ considerably in size, shape, and markings from those first found; but there can scarcely be any doubt about the identification, for the female parent was shot close to the nest, while the other bird was distinctly seen when flying from it, and was black, having its tail barred with white below. Perhaps, however, it is safest to say that these eggs are not absolutely free from the suspicion of being those of *Urubitinga anthracina*, as the parent seen to leave the nest was not shot. They are oval, considerably smaller at one end; ground-color white, with yellowish weather-stains in spots. One measures 63 × 45 mm. It is finely sprinkled with dark sepia-brown specks, and a few paler brown and lavender spots, having a smeary granular appearance. All the marks are most numerous at the large extremity. The other measures 61 × 43 mm. It is

evenly blotched with very pale yellowish brown and lavender. Both contained large embryos and were emptied of their contents with difficulty. Mr. Brewster describes eggs taken from a nest built in a cypress tree on the banks of Guadaloupe River, in Comal County, Texas. They are "marked with blotches of reddish brown upon a dull white ground." These blotches in one specimen occur most thickly about the larger end, where they tend to form a nearly confluent ring, while in the other specimen the markings are most numerous about the smaller extremity. He observes that "although the parent birds belonging to this nest successfully eluded all attempts to capture, their identity can scarcely be doubted." The specimens measured (reducing to millimeters) 53.09 × 38.86 mm. Mr. F. Stephens also found this bird breeding on the Gila River in New Mexico, about twenty miles from the Arizona line, and obtained one of the parents. The nest was placed in a very large cottonwood tree, in the mouth of a cañon, and contained one egg, having a large embryo which could not be extracted. The nest was quite bulky, composed of twigs, lined with strips of the inner bark of the cottonwood. The egg was marked with large reddish brown blotches, irregularly distributed on a dirty white ground.

From the above description it will be observed that the variation in the eggs of this species, both in size and color-markings, is considerable, but possibly not greater than in other species of the genus.

Urubitinga anthracina (*Licht.*) *Lafr.* MEXICAN BLACK HAWK.

"*Falco anthracinus* LICHT." NITZSCH, Pterylographie, 1840, p. 83.

Urubitinga anthracina LAFR. Rev. Zool. 1848, p. 241.—HENSH. Zool. Expl. W. 100 Merid. 1875, pp. 420, 141 (introductory notes).—RIDGW. Studies Am. Falconidæ<Bull. U. S. Geol. and Geogr. Surv. Terr. April 1. 1876, p. 170.—BREWST. Bull. N. O. C. VIII, No. 1. 1883, p. 30.

DESCRIPTION.—*Adult in breeding dress* (No. 4103, ♀ ad., June 19, 1885, Fossil Creek, Arizona. E. A. M.; parent of nestling described below). General color brownish-black, slightly glossed with metallic reflections of green, gold, and purple, with a glaucous cast, most pronounced upon the interscapular region and nape; lores, ophthalmic region, and a triangular patch extending backward from the angle of the mouth white, but

the loral region mixed with black hairs, and the feathers of the post-angular patch having black shafts and gradually blending apically to blackish behind; upper and under tail-coverts narrowly tipped with white; tail jet black, white at extreme base, narrowly tipped with white, and crossed about the middle by a broad continuous band of pure white, of variable pattern on the individual feathers, and with a few irregular, small white spots upon the inner webs between the white central and basal bands, barely indicating an additional white bar; shafts of rectrices black above excepting the two central ones, which are white, lined centrally with black, below chiefly white in the area corresponding to the white bar, elsewhere black; feathers of the nape and interscapular region white at base, the rest of the body feathers being blackish throughout; tibial plumes narrrowly tipped with rusty white, not filamentous; feathers of the edge of wing narrowly edged with white; lining of wings black, a few feathers perceptibly edged with pale rufous; remiges beautifully mottled beneath with white on the inner and gray on the outer webs; above the outer webs are mottled with hoary grayish, the mottling changing upon the inner webs to rusty ochraceous and whitish; quills white at base, shading to black; scapulars indistinctly edged with browish. Irides reddish-hazel. Cere, mastax and tomia orange. Bill plumbeous black, orange at extreme base. Tarsi and feet yellow; claws plumbeous black. *Dimensions.*—Length, 555; alar expanse, 1315; wing, 413; tail, 245; culmen and cere (chord), 40; cere, 15; culmen, 28; gape, 42; tarsus, 91; middle toe and claw, 62; middle toe alone, 47. Claw of hallux, 27; inner claw, 52; middle claw, 22; outer claw, 17.

A specimen in fresh autumnal plumage (No. 3354, ♀ ad., Sept. 26, 1884, Verde River, near Fort Verde, Arizona; E. A. M.) differs from the above chiefly in having the glaucous tinge of the plumage much more distinct, in this respect affording an exact parallel to the Black Crested Flysnapper (*Phainopepla nitens*) in corresponding plumages. The glaucous extends to all of the dark plumage except the tail. The plumage being unworn, the pattern of the apices of the feathers is better exhibited; the terminal band of white on the tail is wider, the light edging to the tail-coverts, tibial plumes, and edge of wing more pronounced, and some feathers of the chest and interscapular region are seen to have rusty edgings, while upon the chin and cheeks are scattered a few white filamentous feathers, and the concealed bases of the feathers of the nape and interscapulars are rusty tinted. The mottling of the remiges is darker—chiefly gray, with little white or rusty. The white spots upon the inner webs of the rectrices, mentioned above as indicating an additional white bar, intermediate between the basal and broad central white bands, are strongly indicated and extend to both sides of the shafts. The feathers at front of forehead are white at extreme base. Irides hazel. Bill pale yellow at base, shading through light plumbeous to blue-black terminally. Cere, mastax, and tomia pure bright yellow. Tarsi and feet yellow; claws blue-black. *Dimensions.*—Length, 560; alar expense, 1330; wing, 400; tail, 262; culmen and cere, 40; cere, 16; culmen, 28; gape, 42; tarsus, 88; middle toe and claw, 66;

middle toe alone, 47. Claw of hallux, 27; inner claw, 25; middle claw, 24; outer claw, 18.5.

Nestling (No. 4104, ♂ juv., June 19, 1885, Fossil Creek, Arizona: E. A. M.). Covered with dense woolly down, nearly white on head and breast, passing into grayish posteriorly upon the head, throat, sides of breast, tibiæ, and back; the feathers are just emerging from the soft down, while the remiges and scapulars are grown out enough to show the color-pattern, and the quills of the rectrices are about 70 mm. (2¾ inches) in length, only the terminal one-fourth of their webs being expanded. The exposed feathers bear terminal hairy filaments and tufts of down. The eyelids are clothed with fine black hairs. The feathers discernible upon the throat are black. The parotics and feathers of the back, crown, breast, and flanks are brownish black, edged or tipped with ochraceous; those upon the outer side of the tibiæ are handsomely barred with black and ochraceous; the remiges, wing-coverts, and scapulars are brownish black, the wing-coverts, scapulars, and some of the remiges being edged and tipped with rusty-fulvous; the secondaries with lateral ovate spots of ashy-gray, tinged with rusty, those upon the inner webs often wholly rusty. The terminal upper tail-coverts are edged with pure white, as in the adult; and the white terminal bar across the rectrices is likewise strongly marked, but tinged slightly with ochraceous. Irides brownish gray; cere greenish yellow; tarsi and toes yellow; claws plumbeous black; bill dusky plumbeous. In this species the form is very heavy and powerful, the body weighing twice as much as that of *Buteo abbreviatus;* this with the elongated bill and tarsi, together with the broad white band across the middle of the tail, will serve readily to distinguish it from that species.

My specimens differ from those examined by Mr. Ridgway in having but four outer primaries cut, while the fifth is shallowly emarginated—less so than in *Buteo borealis*—the sixth being perfect in outline. The tail is nearly square, the central rectrices extending only from 9 to 11 mm. beyond the outer pair.

HABITS.—When hunting along a sluice of the Verde River, beneath a dense growth of willows and cottonwoods, I first discovered the Anthracite or Mexican Black Hawk, perched among the thickest foliage of a low willow overhanging the shallow water. The imperfect view obtained as it flew off through the trees led me at first to suppose that it was an immature Golden Eagle, a species that I had several times encountered thereabouts in similar situations. A snap shot proved unsucessful, as was the case on several subsequent occasions, and, although I frequently saw them along the river, it was long ere I succeeded in procuring a specimen. Always extremely shy, they were usually found hidden in the foliage near the water in some low situation whence, when surprised, they generally managed

to escape through the foliage of the cottonwoods without affording a good opportunity for a shot. Their flight is swift and powerful. Occasionally one was seen eating a fish, upon the sandy margin of the river. They were present throughout the summer, but departed in the autumn, my absence in the field during the months of October and November having prevented me from determining the date of departure.

On the 26th of March, 1885, I found one of these Hawks upon the Agua Fria, about thirty miles southwest of Fort Verde, at a considerably higher altitude: and on Oak Creek, a mountain stream thirty miles north of Fort Verde, in the foothills of the San Francisco Mountains, I wounded an immature example on the 12th of August of the same year, it having probably been reared on that stream, which abounds with trout and other fishes.

On the 19th of June, 1885, Captain T. A. Baldwin and I set out to visit Fossil Creek, thirty miles east of Fort Verde, with an escort of two soldiers. We carried some rations and mining implements, packed upon a mule and two burros. We found the trail to the cañon without difficulty, but when nearly at the bottom took the wrong fork of the trail, which finally led us to the spring and forks of Fossil Creek, both branches of which we explored for several miles, finding tracks of wolves, bears, deer, raccoons, and beavers. A pair of Mexican Black Hawks were found at the forks of the stream close to the place where we had pitched our camp. Their loudly whistled cry is different from that of any bird of prey with which I am acquainted, but is difficult to describe, although rendered with great power.

They circled about us a few times, then retreated to some tall piñons upon the hillside, where they continued to cry vehemently until I essayed to force my way through the thick scrub oak towards them, when both birds flew, with loud screams, to a tall pine tree down the stream, where I succeeded in obtaining a long shot at the male bird, which, although mortally wounded, flew beyond my reach before dropping to the ground. His mate flew to the piñons far up the steep bank of the cañon, out of reach, and continued screaming constantly, following me up the cañon. Towards nightfall I came up with Captain Baldwin, and he told me that he had discovered the nest of my *rara avis* in a tall cottonwood down the cañon, and said if we hastened we might procure the eggs before dark and secure the other parent.

The nest was built in a cottonwood tree in the same grove in which we first found the birds. The nest had evidently been the birthplace of many generations of these Hawks, for it measured four feet in depth by two feet in width. It was lined with a layer of cottonwood leaves several inches deep, was very slightly concave, and composed of large sticks, much decayed below, showing that they had been in position for a number of years. The nest was about thirty feet from the ground. The female parent remained too shy to return to the nest until I began to climb the tree. At first I attempted to ascend by means of some grapevines, which gave way; then I managed to reach the upper part of the huge bole by swinging from a tall, slender box-elder tree, and scrambled with much exertion to the lowest branch. Meanwhile the Hawk had shown much uneasiness, fluttering in the air and screaming lustily. As I approached her treasure her parental solicitude overcame her terror and she sailed over the tree-top. I saw the gun at the Captain's shoulder and feared he would miss; but he wisely held his fire until the bird wheeled and rushed directly toward me, when a well directed shot dropped her just at his feet. A minute later I reached the nest and discovered a single half grown nestling, having the quill-feathers webbed terminally, and leaden gray down covering the greater part of the body. It fought fiercely, and evinced great pluck and ability to defend itself. The wounded parent was also savage, and tried to reach its assailant. After it was dispatched, the Captain proposed that we should attempt to find my wounded Hawk; but the locality was too dangerous, so we abandoned it with regret.

LIST OF BIRDS OBSERVED IN SUMMER AND FALL ON THE UPPER PECOS RIVER, NEW MEXICO.

BY H. W. HENSHAW.

[*Concluded from Vol. II, p. 333.*]

30. **Poœcetes gramineus confinis.** WESTERN GRASS FINCH. — A single individual was secured Sept. 20. It was doubtless merely a migrant which had strayed from its proper territory lower down on the plains.

31. **Zonotrichia leucophrys.** WHITE-CROWNED SPARROW. — Present only as a rare migrant, it being too far south for the species to breed.

32. **Zonotrichia intermedia.** RIDGWAY'S SPARROW. — Rather common as a migrant. None of course breed, as none are known to do so within the United States.

33. **Spizella socialis arizonæ.** WESTERN CHIPPING SPARROW. — An abundant summer resident. Very abundant in the weed patches Sept. 8. Up to this time not a single bird had been seen in the fall dress, all being in the plumage of the young, *i. e.*, streaked beneath. Later individuals in the fall plumage became more common.

34. **Junco caniceps.** GRAY-HEADED SNOWBIRD. — This is one of the commonest summer residents found in the mountains, and occurs everywhere throughout the timber belt above an altitude of 6000 feet. The old birds were leading their broods about in the spotted plumage at the time of our first arrival, July 18, and the species continued to be equally common up to the last of October, the places of such birds as migrated further south being filled by others from points further north.

35. **Junco oregonus.** OREGON SNOWBIRD. — Though by no means so numerous as the bird just named, this Snowbird became pretty common after October 1, and in every flock of Snowbirds there was a fair sprinkling of this species, to be recognized from its comrades by its stouter form and darker colors.

36. **Junco annectens.** PINK-SIDED SNOWBIRD. — Made its appearance a few days later than *oregonus*, and not in such numbers. In a flock of 200 Snowbirds, perhaps 125 would be *caniceps*, 50 *oregonus*, and 25 *annectens*. These figures represent about the average. Of the three, *oregonus* is by far the greater wanderer. So far as known it does not breed anywhere east of the Sierras; yet in fall it is found in almost every flock of Snowbirds in the region between that chain and the main ridge of the Rocky Mountains, and as far south as the Mexican border. Neither of the other species go so far south, or are dispersed longitudinally to anything like the same extent.

37. **Peucæa cassini.** CASSIN'S FINCH. — Curiously enough a single specimen of this bird was taken close to the banks of the Pecos. No locality could be less suited to its habits, and it evidently was a mere straggler from the plains below.

38. **Melospiza lincolni.** LINCOLN'S FINCH. — Evidently does not occur in summer. The first was taken Sept. 12, after which date it became tolerably numerous in the weed patches.

39. **Pipilo maculatus megalonyx.** SPURRED TOWHEE. — Uncommon. A pair or two passed the summer in the brush along the Pecos.

40. **Pipilo chlorura.** GREEN-TAILED FINCH. — Also uncommon. A single brood was seen in the little valley below our camp, and a few stopped on the migration.

41. **Pipilo fuscus mesoleucus.** CAÑON TOWHEE. — Not found so high up in the mountains as our camp, but extremely common at Glorietta, on the railroad, and thence following up the river for some distance into the foothills.

42. **Passerina amœna.** LAZULI FINCH.— Shot a single individual Aug. 8, the only one seen.

43. **Scolecophagus cyanocephalus.** BREWER'S BLACKBIRD. — A few made their appearance during the fall migration.

44. **Corvus corax carnivorus.** RAVEN.— Rather common; undoubtedly breeds in the higher parts of the mountains.

45. **Corvus frugivorus.** COMMON CROW.— A few were seen in October; apparently does not breed.

46. **Picicorvus columbianus.** CLARKE'S CROW.— It is doubtful if this species breeds as low as the elevation of our camp, 7800 feet. It unquestionably, however, breeds on the high ridges and mountain sides, and becomes numerous at lower altitudes among the pines, early in the fall.

47. **Gymnocitta cyanocephala.** MAXIMILIAN'S JAY.— This species appears never to get up among the pine woods. It is, however, abundant in the piñon groves about fifteen miles down the river, where it is a constant resident.

48. **Cyanocitta stelleri macrolopha.** LONG-CRESTED JAY.— This Jay is extremely numerous all through the pine region, where it is a constant resident.

49. **Perisoreus canadensis capitalis.** WHITE-HEADED JAY.—Up to October 27 this bird had not descended to the altitude of our camp, about 8000 feet. It breeds high up in the mountains in the spruce timber, and does not descend lower until heavy snows compel it to wander in search of food. It is very common.

50. **Contopus borealis.** OLIVE-SIDED FLYCATCHER.—Rather common as a summer resident. Were it not for its loud, piercing note this species would easily be overlooked, as it frequents the higher stubs and does all its insect hunting from them.

51. **Contopus richardsoni.** WESTERN WOOD PEWEE.—Numerous all through the pine region.

52. **Empidonax flaviventris difficilis.** YELLOW-BELLIED FLYCATCHER. —Rather common in the brush along the water-courses. Nests on ledges of rock. Saw the young accompanied by the parents July 19.

53. **Empidonax obscurus.** WRIGHT'S FLYCATCHER.—Not common. Occurs as a summer resident.

54. **Selasphorus platycercus.** BROAD-TAILED HUMMER. — Extremely numerous; young birds were noticed August 1, and by the 10th they became common. By August 1 the males of this species began to get less numerous, and by the 10th there were none; in fact, I saw very few after that date. This is an extremely interesting fact. Wherever I have been in the West, and for that matter in the East also, I have always been led to wonder at the apparent absence of males early in fall in localities where the females and young were very numerous. The observations I was able to make here solved the problem to my satisfaction. The truth appears to be that *immediately* upon the young leaving the nest the males abandon their summer limits and at once set out for their winter quarters, leaving the females and young to follow at their convenience.

In this locality at least there is an evident reason for this. Just about this date the *Scrophularia*, which is the favorite food plant of the Hummers, begins to lose its blossoms, and in a comparatively short time the flowers give place to the seed pods. Though there are other flowers which are resorted to by the Hummers, particularly several species of *Penstemon*, they by no means afford the luxurious living the former plant does. It seems evident, therefore, that the moment its progeny is on the wing, and its home ties severed, warned of the approach of fall alike by the frosty nights and the decreasing supply of food, off go the males to their inviting winter haunts, to be followed not long after by the females and young. The latter—probably because they have less strength—linger last, and may be seen even after every adult bird has departed.

55. **Selasphorus rufus.** RUFOUS-BACKED HUMMER.—The number of representatives of this and the preceding species that make their summer homes in these mountains is simply beyond calculation. No one whose experience is limited to the Eastern United States can form any adequate idea of their abundance. They occur from an altitude of about 7500 feet far up on the mountain sides, as high up, in fact, as suitable flowers afford them the means of subsistence. They are most numerous at an altitude of from 8000 to 9000 feet. During the entire summer they frequent almost exclusively a species of *Scrophularia* which grows in clumps in the sunnier spots of the valleys. From early dawn till dusk the Hummingbirds throng around these plants intent in surfeiting themselves on honey and the minute insects that the honey attracts. The scene presented in one of these flowering areas is a most attractive one. Males and females all flock to the common feeding ground, and as the Hummers, especially of the Rufous-backed species, are pugnacious and hot tempered in the extreme, the field becomes a constant battle-ground whereon favorite flowers and favorite perching grounds are contested for with all the ardor that attaches to more important conquests. The fiery red throat of the Rufous-backed Hummer is an index of its impetuous, aggressive disposition, and when brought into conflict with the other species it invariably asserts its supremacy and drives its rival in utter rout from the fields. Nor do the males of this species confine their warfare to their own sex. Gallantry has no place apparently in their breasts, and when conquest has put them in possession of a perch near a clump of flowers they wage war on all comers, females as well as males.

Nor is the pugnacity of this Hummingbird limited to attacks on other species. The presence of a male of its own kind is sufficient to arouse it to the highest pitch of fury, and should the contestants be equally matched they will seize each other by the bill and, using their wings as offensive weapons, fall to the ground, roll over and over in fierce strife until exhausted, or until one is worsted, when he is off like a bullet for less dangerous hunting grounds, followed by the exulting victor, who, however, soon gives over pursuit and returns to the perch he has so well won, to preen his disordered plumage and make ready for a fresh contest.

When the attack is urged against the males of the Broad-tailed species

the contest is less fierce, the latter species usually abandoning the ground in hot haste. The latter result always follows the assault of a male upon the females who, if less valiant in battle, are scarcely less backward when it comes to the assertion of their rights against intruders of their own sex. The rivalry the females display is not less marked if the battles it prompts are less fierce than when the males are engaged; occasionally the females will fight with all the ardor displayed by the males. The mimic contests thus hinted at rather than described—for the fury and spirit displayed in their battles must be seen to be appreciated—are continued all day long, and were the strength of the combatants at all proportionate to their fury the problem of Hummingbird life would simply resolve itself down to a question of the survival of the strongest. But the tiny strength of these pygmies, though backed by never so much warlike spirit, is scarcely sufficient to detach a feather from each other's gleaming bodies; and even at the close of the season the male birds show little wear and tear, and are in prime condition as regards their plumage.

If they have occasion to fear each other — and sometimes I have thought they fight merely for the pure fun of it — they fear nothing else. About our camp, where were a few clumps of the *Scrophularia*, they were especially fearless, and provided one remained reasonably quiet they would approach within two or three feet. When in such proximity their sharp eyes were constantly on the watch, and a hostile movement sent them away like streaks of flame. By gradual approach, however, I was able on several occasions to strike one down with my hat and secure it uninjured before it recovered either presence of mind or strength to get on wing.

Some idea of the number of Hummingbirds in this locality — and in this respect this whole mountain area is alike — may be gained from the statement that in a single clump of the *Scrophularia* I have counted eighteen Hummers, all within reach of a ordinary fishing rod. There was scarcely a moment in the day when upwards of fifty could not be counted within the area of a few yards in any of the patches of this common plant.

As to their nesting, it is a curious and almost unaccountable fact that notwithstanding their great numbers we found but a single nest, and this after it was deserted. Inquiry among the settlers showed that they had never chanced upon their nests, and I judge that the greater part nest, as I found to be the case in Arizona, in the upper limbs of the pines; occasionally they nest lower. The one I found was on a dead aspen, not more than ten feet from the ground. At the time when they are building their nests may be readily found. One has only to follow the birds straight to their nesting-sites as they bear away material in the shape of conspicuous tufts of cottony down from the willows.

It seems as though *S. rufus* must breed rather less abundantly in this locality than *S. platycercus;* at all events, while the former was much less common at and for a considerable time after the date of our arrival, by August 1, when the males of *S. platycercus* had about disappeared, the

males of the former species were more numerous than ever. This fact is attributed to a migration from somewhere further north, though this locality is, in truth, about the most northern limit of the species in the Rocky Mountains.

A single *S. rufus* was seen September 15. It was the last bird of the season.

56. **Stellula calliope.** CALLIOPE HUMMINGBIRD.— This, the most diminutive of our Hummers, is rather numerous in summer in the locality in question, much further north than which it does not go. The species has not yet been detected in Colorado, though I doubt not but that the higher mountains of the southern portion of that State afford a summer home for some of them. It is a curious fact in connection with the history of this species, as well as that of the *S. rufus*, that while both of them range far to the northward in the Sierra Nevada, reaching Washington Territory, and even going beyond into Alaska, they yet decline to visit even the middle portion of the Rocky Mountains, but confine their range to their southern parts. The Calliope Hummer is, as compared with the other species mentioned, a rare bird. It is also much less obtrusive, and in the contests of its larger neighbors it takes no part. When assailed, as it promptly is by the other kinds, it at once darts away to another spot where it can feed without molestation. It appears to be timid in every way, so much so that it is not an easy bird to collect. An utterly unaccountable fact noticed in connection with this species was the apparent rarity of females. Up to August 10 I had seen perhaps half a dozen, though constantly on the watch for them, while I had certainly seen not less than ten times that number of males. Subsequent to that date I saw a few more, but nothing like the number of males.

By September the young were numerous in certain localities, notably in a large sunflower patch.

57. **Cypseloides niger borealis.** BLACK SWIFT.— A single one was seen in September, evidently migrating.

58. **Phalænoptilus nuttalli.** POOR-WILL.— Evidently a rare species in this particular locality. Two only were obtained. This species is extremely local and may be abundant in one locality and entirely wanting a few miles away.

59. **Picus villosus harrisi.** HARRIS'S WOODPECKER.— Numerous as a summer resident.

60. **Picus pubescens gairdneri.** GAIRDNER'S WOODPECKER.— Not uncommon, though much less common than the preceding, which, indeed, appears to be the case almost everywhere where found.

61. **Picoides tridactylus dorsalis.** STRIPED-BACKED THREE-TOED WOODPECKER.— Rather common as a resident. Inhabiting the pine woods comparatively little, but frequenting the stretches of dead and fire-blackened timber.

62. **Sphyrapicus varius nuchalis.** RED-NAPED WOODPECKER.— Common as a summer and fall resident. Lives entirely among the deciduous trees, as aspens, etc.

63. **Sphyrapicus thyroideus.** BLACK-BREASTED WOODPECKER.— Common as a summer and fall resident.

64. **Melanerpes formisivorus bairdi.** CALIFORNIAN WOODPECKER.— The status of this Woodpecker in the region under consideration is a little difficult to understand. This is probably about its northern limit in the Rocky Mountain region, and it may summer in the lower portions of the mountains. The first individuals were seen August 27, and it soon became rather numerous. Probably in all not less than fifty were seen. It was noticable that it frequented the locality of certain small oak groves. In fact, it is doubtful if the bird ever occurs, at least in United States, apart from these trees. No indication of its well known habit of storing away acorns in holes was detected.

65. **Colaptes auratus mexicanus.** RED-SHAFTED FLICKER.— A common summer resident.

66. **Ceryle alcyon.** KINGFISHER.— Does not breed in this locality. Several were seen along the stream in the fall, when they secured a good harvest of small trout.

67. **Strix occidentalis.** SPOTTED OWL.— The single individual of this species that was detected was shot August 20. Whether it breeds here or not, or how common it is, are utterly unknown.

68. **Bubo virginianus subarcticus.** WESTERN HORNED OWL.— Numerous, and doubtless a constant resident.

69. **Glaucidium gnoma.** CALIFORNIA PIGMY OWL.— This little Owl was numerous, as it appears to be everywhere throughout the Southern Rocky Mountains. It is known to occur as far north as the neighborhood of Colorado Springs, where it has been taken by Mr. Aiken. Its small size and unobtrusive habits render it peculiarly liable to be overlooked, even where it may be not uncommon. It is very apt to take its station early in the morning on the topmost or outermost branch of an old stub, waiting for the sun that it may enjoy the warmth of its rays.

There is a ready method of detecting the suspected presence of this little Owl, and this is by imitating its notes, which can be done to a nicety. The little fellows are extremely sociable in disposition, as witness the fact that one is rarely found alone. In fall, in fact, they are usually met with in companies.

When awake and on the alert they are prompt to answer the call of a supposed lonely comrade, and I have frequently called them to me when half a mile distant, and this, too, when I took the initiative in calling. When the Owl calls first he can be lured close up enough to be interviewed with almost perfect certainty. Curiously enough, they do not appear to detect the fraud, even though one be standing at the foot of the very tree they may be concealed in. I have stood or walked around a tree for a half hour trying to detect the exact whereabouts of one of these little Owls when he was whistling back at me every moment, and when, of course, I must have been visible most of the time.

They shelter themselves from sun and rain, and from prying eyes, as do larger Owls and Hawks, by standing on a limb close up to the body

of a tree where they can be detected only by the most patient search. In very inclement weather I presume they ensconce themselves snugly in some of the innumerable cavities in old stubs.

70. **Æsalon columbarius.** PIGEON HAWK.—Not uncommon.

71. **Tinnunculus sparverius.** SPARROW HAWK.—Numerous, chiefly in fall.

72. **Pandion haliaëtus carolinensis.** FISH HAWK.—Several seen in fall. Very destructive to trout.

73. **Accipiter cooperi.** COOPER'S HAWK.—Common.

74. **Accipiter fuscus.** SHARP-SHINNED HAWK.—Common.

75. **Astur atricapillus striatulus.** WESTERN GOSHAWK.—Several were seen in fall.

76. **Buteo borealis calurus.** WESTERN RED-TAIL.—The most abundant of all the Hawks. Very numerous and resident.

77. **Aquila chrysaëtus canadensis.** GOLDEN EAGLE.—Rather common as a summer resident.

78. **Cathartes aura.** TURKEY BUZZARD.—Common.

79. **Columba fasciata.** BAND-TAILED PIGEON.—None of these birds nested near our camp, though they probably did not far away. The latter part of August they were found feeding upon the berries of the *Sambucus racemosa*, a small shrubby plant, from two to four feet high. Subsequently, when the acorns began to grow large—long before they began to ripen—they appeared to devote themselves exclusively to them, and between the Pigeons and the squirrels, not an acorn was allowed to ripen. The acorns were of the scrub oak, *Quercus undulata* (two varieties), and are extremely palatable. Pigeons were shot not only with their crops full, but with the gullet crammed up to the very bill.

80. **Meleagris gallopavo.** MEXICAN WILD TURKEY.—Turkeys are found all through the mountains, but they are by no means common. As winter approaches they leave their summer haunts and travel down to the foot-hills and the mesas, where they remain till the snow goes, when, like the deer, they return.

81. **Canace obscura.** DUSKY GROUSE.—Not abundant, though generally distributed through the mountains.

82. **Tringoides macularius.** SPOTTED SANDPIPER.—This ubiquitous little Sandpiper was found along the Pecos at various points, and the fact that it breeds at an altitude of about 8000 feet was attested by the presence of young just out of the shell.

83. **Nettion carolinensis.** GREEN-WINGED TEAL.—This chanced to be the only species of Duck noticed. Ducks drop in here by the merest accident in spring and fall, and doubtless at one time or another most of the migrating species occur along the river.

ON THE BREEDING HABITS OF SOME ARIZONA BIRDS.

BY W. E. D. SCOTT.

Fifth Paper.

Aphelocoma sieberii arizonæ.

The Arizona Jay (*Aphelocoma sieberii arizonæ*) is an abundant species and resident wherever the live-oaks are found on the San Pedro slope of Las Sierras de Santa Catalina, between the altitudes of 3000 and 7000 feet. It is generally seen in parties of from half-a-dozen to twenty, and is an eminently gregarious and sociable bird, even during the season of breeding; and I cannot recall an instance where I have met with a solitary individual. Generally rather wary in its habits, it becomes more familiar in winter, and a bone or piece of meat hung in a tree that shades my house, induced daily visits as long as the severer weather of the past year lasted. It is quite as terrestrial as the common Crow of the East, and in many of its habits remind me of that species. During the season of acorns they form a great element in its diet, and at other times seeds of grasses and some kinds of grubs and beetles are its principal food.

About the last of February, 1885, I noticed the birds mating, and on the 16th of March found a nest, apparently completed, but containing no eggs. There were at least half-a-dozen pairs of the birds in the immediate vicinity, but a close search did not reveal any other nests. The nest was built in an oak sapling about ten feet from the ground, and is composed of dry rootlets laid very loosely in concentric rings, and with little or no attempt at weaving together. There is nothing like a lining, and the walls of the structure have an average thickness of about three-quarters of an inch. The interior diameter is five inches, and the greatest interior depth an inch and three-quarters. The whole fabric recalls to mind a rather deep saucer. The nest was not built in a crotch, but where several small branches and twigs leave the large branch (an inch and a half in diameter) which forms the main support. All the other nests I have seen resemble this one so closely that this description will answer for them.

I did not visit the nest again until the 25th of the month, and was then rather surprised to find another nest, precisely similar to the first, only about a foot away from it on the same branch, further out from the main stem of the tree. The female bird was sitting on the nest first built, and remained there until I was about to put my hand upon her; no eggs had been laid.

About a hundred feet away I discovered on the same day, the 25th, two other nests, also in oak trees, and on one a female was sitting. On disturbing her I found that the nest contained two fresh eggs, so like those of the Robin in color and general appearance as to be almost indistinguishable from them. Believing at the time, as the bird sat so closely, that this might be the full set, I took these eggs, which measured 1.18 × .88, and 1.13 × .86 inches respectively. On visiting the same locality a few days later I found this nest deserted. The other nest, found the same day, was in another oak, the branches of which touched those of the tree in which the nest containing the two eggs was placed. The two nests were not ten feet apart. There was no bird on the latter nest, nor did it then or afterward contain eggs, though it was without question a new nest, and very recently completed.

On the 1st of April I again visited the two nests first mentioned, and though the old bird was sitting on the nest earliest completed, it still contained no eggs. A visit to the same spot on April 7 was rewarded by finding five fresh eggs in this nest, which are identical in appearance with those above described, and measure, in inches, as follows: 1.25 × .83; 1.13 × .85; 1.23 × .83; 1.14 × .80; 1.16 × .84. The other nest did not, at this time or afterward, contain eggs; though I visited it for several weeks, at intervals of five or six days.

The striking features developed by these observations are, first, the long period after the nest was built before eggs were laid (the nest being evidently complete on March 16, and having no eggs until later than April 1), though the old birds, one or the other, were sitting on the empty structure; and, second, the building of another nest in every way identical with the first, and very close to it, which was of no obvious use, for I never noticed either of the old birds sitting on it, as was so constantly their habit in the nest close by.

I am entirely at a loss for an explanation of the fact that the nest was prepared so long—nearly three weeks—before it was

used. It will be remembered that similar facts were noted in the breeding of the Gray Vireo (*Vireo vicinior*). As to the circumstance of the birds sitting so constantly before laying, I think it not improbable that it was in order to keep possession of their nest, for as a number of individuals of the species composed the colony a question of ownership might easily arise. The species too, is quite as great a robber of other birds' nests as its cousin of the East, and possibly the habit of sitting so constantly, even before any eggs are laid, is to be accounted for by a strongly inherited tendency to prevent intrusion.

The building of extra nests, as in the two instances cited, I think finds parallel in the case of the Long-billed Marsh Wren, and is possibly to be accounted for by the great nervous activity of the birds; or the extra nests may afford night resting places for the male bird during the breeding season.

Peucæa ruficeps boucardi.

This species, while resident here up to the altitude of 4000 feet in winter, and to nearly 10,000 feet during the warmer months, is much more common from the last of February until the middle of October than at other times of the year. It seems to be less shy than others of the genus that I have met with, save *Peucæa carpalis*, and does not seek cover in the thick grass to the degree or in the manner so characteristic of its congeners. At most times when flushed it will fly to the nearest tree, making little attempt to conceal itself. I often see many feeding where barley or other grain has been thrown to the domestic fowls, and at such times they are quite as familiar as the Sparrow that has caused so much argument and finally been so severely condemned in the Eastern cities. I noted the birds as beginning to sing and mate as early as the middle of March, and at that time of the year they had become a very common and characteristic species of this region.

I have before me two nests. They are so essentially similar that the description of one will answer for both. The first was found on June 5, 1885, well up on a hillside, at an altitude of 4500 feet, on the bare ground, near a tussock of grass, and manifestly no effort had been made to choose a location that would offer any shelter, or serve to conceal the structure. This nest is

very bulky for so small a bird, and is so loosely and carelessly put together that it would appear that little labor had been expended in its building. It is composed of coarse, dried grasses throughout, and there is no attempt at lining with any finer material. The interior diameter is two and three-quarters inches, and the interior depth one inch and a half. The walls are about one inch thick, but in places the grasses are allowed to straggle about in so careless a manner that the walls seem at least two inches in thickness. Contained in this nest were two young just hatched and one egg, apparently fresh, probably infertile. This egg is dead white, without any spots, and is almost as much rounded at one end as at the other. It measures .83 × .62 inches.

The other nest is, as I have said, almost identical in appearance with that just described, save that it is even more bulky and a trifle deeper inside, and was found about July 27, in a similar locality. It contained three partly incubated eggs, which are the same in coloration as the one before described, and which measure respectively .80 × .58, .82 × .60, and .86 × .61 inches.

A third nest is similar, and contained the same number of eggs. It was taken late in July, and the eggs were almost fresh. The species raises three broods at this point, and it will be seen that the breeding season extends over a period of five months.

Lophophanes wolweberi.

Another resident and rather common species in the cañon, of which a description has been given in a former paper of this series, is the Bridled Titmouse (*Lophophanes wolweberi*). It is gregarious, except during the breeding season, going about in small companies. I frequently find it, especially in the fall and winter months, associated with flocks of the Plumbeous Bush-tit (*Psaltriparus plumbeus*), and a pair or more of Strickland's Woodpeckers (*Dryobates stricklandi*) are generally found with the band. I am strongly reminded of the Black-capped Titmouse (*Parus atricapillus*) by this crested cousin of his; for the Bridled Titmouse is quite as unsuspicious and as fond of the society of man.

On the two occasions that I have discovered the species breeding the nests were located in natural cavities in the live-oaks, close

to my house. The first of these was found on May 9, 1884. I took the female as she was leaving the nest, which was in a cavity, formed by decay, in an oak stump. The opening of this hole was about three and a half feet from the ground; its diameter was about three inches inside, and it was some eighteen inches deep. The entrance was a small knot-hole where a branch had been broken off, and was only large enough to admit the parent birds. The hollow was lined with cottonwood down, the fronds of some small rock-ferns, and some bits of cotton-waste. Three eggs had been laid, and by the appearance of the female two more would have completed the set. Unfortunately, in taking the eggs from the nest, two of these were broken, and I am prevented from giving measurements of more than one. All of them were pure white, with a pinkish tinge before being blown, and are unspotted. They are very much pointed at one end, and correspondingly obtuse at the other. The unbroken egg measures .63 × .48 inches.

Just a year later, on May 8, 1885, I again found a pair breeding in an entirely similar location, and also very near the house. I had been aware for some days that the nest was in a certain group of oaks, for the male was constantly singing his very pleasing song, and though I could see as well as hear from the piazza, it was only by most careful watching that I was able to locate the one of the many natural holes in which the pair had made their home. The small entrance was some six feet from the ground, and the cavity was a foot deep, and two and a half inches in diameter. It was lined on the bottom and well up on the sides with a mat composed of cottonwood down, shreds of decayed grasses, some hair from a rabbit, and many fragments of cotton-waste, gathered by the birds from refuse waste that had been used to clean the machinery of a mill hard by. I cannot help calling attention again to the fact of how largely the birds that breed in the immediate vicinity of this mill have acquired the habit of utilizing this material. Four years ago very few settlers had invaded this region, and no machinery had before been brought into the district. Now the influence of man, on such a minor detail as the material used in nest-building, by a great variety of birds just about, is plainly appreciable.

The nest contained, when discovered, four young just born, and two eggs about to be hatched. These are very similar to the

egg already spoken of, being dead white in color, without any spots or markings, and measuring .65 × .51, and .67 × .53 inches.

I think it unlikely that a second or later brood was raised by this species, as by the third week in June I have found several broods of young associated together, escorted each by the parent birds; in this way, forming very large flocks, they roam about through the oak groves.

A LIST OF THE BIRDS OBSERVED IN VENTURA COUNTY, CALIFORNIA.

BY BARTON W. EVERMANN.

THE following paper is based upon observations made during the residence of the writer at Santa Paula, from August, 1879, to July, 1881.

Ventura County lies on the coast between the counties of Santa Barbara and Los Angeles. The general direction of the coast line of this county is northwest and southeast. The Santa Barbara Islands lie to the southwest, Santa Cruza and Ana Capa being in plain view from San Buenaventura, which is the county seat and chief town of the county.

The surface of the county is, chiefly, very mountainous, consisting of many spurs or short ranges of the Coast Mountains. Near San Buenaventura, two small rivers empty into the ocean. These are the San Buenaventura and the Santa Clara. The first comes down from the north through a narrow valley with which the cañon called Canada de Largo is joined five or six miles from the coast. The Santa Clara River comes down from the east through the Santa Clara Valley, which varies from less than a mile to two or three miles in width until within eight miles of the ocean when it suddenly widens into a low, level plain many miles in extent. Near where the valley widens is the little village of Saticoy where Dr. J. G. Cooper, who has done so much to elucidate the natural history of the West, once spent a short time collecting. Eight miles further up the valley, or sixteen miles from the coast, is the village of Santa Paula, in the vicinity of which were made most of the observations recorded in this paper. Along the river are small, isolated groves of cottonwoods and

willows, with here and there an occasional sycamore. Scattered irregularly over the valley in its narrow portion are clumps of live-oaks, which are still more numerous in the cañons and on the adjacent foothills. Further up the sides of the mountains are dense growths of chaparral. At many places in the valley are large patches of prickly pear (*Opuntia tuna*), where the Cactus Wren, Mockingbird, Roadrunner, etc., are most numerous. The cottonwoods and larger willows are the chief nesting places of Crows, Long-eared Owls, and Red-bellied Hawks. The Western Red-tail most usually selects the taller sycamores. The live-oaks are frequented by the Least Tit, Brewer's Blackbird, Lawrence's Goldfinch, and the White-tailed Kite. The California Jay, Brown Towhee, White-rumped Shrike, California Mockingbird, etc., usually nest in the undergrowth of sage and other chaparral which is found covering nearly all uncultivated parts of the valley and cañons. Along the coast, near the mouth of the Santa Clara River, are several small lagoons or ponds where vast numbers of Ducks, Geese, and other water birds winter, and where a few species remain to breed.

I have admitted into the following list 202 species, of which number 201 were identified by me personally. The remaining species (*Empidonax obscurus*) is admitted to a place in the list on account of the finding in the county of what seem to be its eggs. The eggs were brought to me by a boy, and I have no doubt but they are of this species.

By admitting to the list only the results of my own observations, the number of species is not as great as it would otherwise have been. It has been my aim to make a reliable, rather than a long, list. Careful observations, especially among the higher mountains and along the coast, will doubtless add several species to the number now recorded.

The nomenclature and classification adopted in this paper is that of the new American Ornithologists' Union 'Check-List.'*

The species that are known to breed in the county are indicated by a star preceding the name. The number in parenthesis after each name is that of the new A. O. U. Check-List.

1. **Æchmophorus occidentalis**. (1.) WESTERN GREBE.—Seen occasionally in the bay in winter. I have a fine specimen which was caught

* [From advance-sheets of the A. O. U. 'Code and Check List,' by desire of the author.—EDD.]

December 10, 1880, in the Santa Clara River, above Santa Paula, eighteen miles from the coast.

2. *Colymbus nigricollis californicus. (4.) AMERICAN EARED GREBE. —Rather common in winter; a few breed in the marshes along the coast.

3. *Podilymbus podiceps. (6.) PIED-BILLED GREBE. — Common resident in the lagoons, where they breed sparingly.

4. Urinator imber. (7.) LOON.—The Loon is rather common during winter along the coast and in the bay.

5. Urinator pacificus. (10.) PACIFIC LOON.—A rare winter visitant. I have seen it occasionally about Rincon Point, and once in the bay at San Buenaventura.

6. Cerorhincha monocerata. (15.) RHINOCEROS AUKLET.—All the evidence I have of the occurrence of this species within our limits is a young bird picked up on the beach near San Buenaventura in January.

7. Ptycorhamphus aleuticus. (16.) CASSIN'S AUKLET.—Cassin's Auklet is rather common about the Santa Barbara Islands, where it is said to breed.

8. Cepphus columba. (29.) PIGEON GUILLEMOT.—Rather common about the Santa Barbara Islands; most numerous on San Nicolas, where it breeds. I was imformed that it breeds also upon Ana Capa Island.

9. Uria troile californica. (30*a*.) CALIFORNIA GUILLEMOT.—I saw this species once in summer near the wharf at San Buenaventura, and regard it as a rare straggler from the Farallones, where it breeds in great numbers.

10. Stercorarius parasiticus. (37.) PARASITIC JAEGER.—I have frequently seen this Jaeger along the coast above San Buenaventura in winter.

11. Larus glaucescens. (44.) GLAUCOUS-WINGED GULL.—A winter visitant; not common.

12. Larus occidentalis. (49.) WESTERN GULL.—This is doubtless the most abundant Gull to be seen on our coast. It is resident, and breeds in great numbers on most parts of the California Coast.

13. Larus argentatus smithsonianus. (51*a*.) AMERICAN HERRING GULL.—This Gull is a very abundant resident.—in winter perhaps quite equalling *L. occidentalis* in numbers.

14. Larus cachinnans. (52.) PALLAS'S GULL.—A winter resident; not common.

15. Larus californicus. (53.) CALIFORNIA GULL.—A rather common winter visitant.

16. Larus delawarensis. (54.) RING-BILLED GULL.—Winter visitant; not common.

17. Larus brachyrhynchus. (55.) SHORT-BILLED GULL.—In December, 1879, I found a dead specimen of this small Gull lying on the beach near San Buenaventura. It was badly decayed and could not be saved.

18. Larus heermannii. (57). HEERMANN'S GULL.—A winter visitant; not very common.

19. **Larus philadelphiæ.** (60.) BONAPARTE'S GULL.—Common in the spring and fall, and seen occasionally in winter.

20. **Sterna maxima.** (65.) ROYAL TERN.—This is the only Tern I identified with certainty as found on the coast of Ventura County. It may be seen at almost any season of the year, and I infer that it must breed on the adjacent islands.

21. **Diomedea albatrus.** (82.) SHORT-TAILED ALBATROSS.—Seen frequently along the coast and in the bay in winter.

22. **Phalacrocorax diplophus cincinatus.** (120.) WHITE-CRESTED CORMORANT.—Abundant along the coast in winter. I found them very abundant about Rincon Point. They doubtless breed on the islands.

23. **Phalacrocorax penicillatus.** (122.) BRANDT'S CORMORANT.—This is the most abundant Cormorant of the California coast, where it is resident. They breed in great numbers on the Farallone Islands, and probably breed on Ana Capa.

24. **Pelecanus erythrorhynchus.** (125.) AMERICAN WHITE PELICAN.—Often seen among the lagunas in winter. In July, 1880, I found scores of this Pelican on the plains of the San Joaquin near Modesto.

25. **Merganser serrator.** (130.) RED-BREASTED MERGANSER.—This species is reported as common in most parts of California, but I can regard it as only a very rare winter resident of Ventura County.

26. **Lophodytes cucullatus.** (131.) HOODED MERGANSER.—The Hooded Merganser is a common resident during the rainy season. A few may remain to breed.

27. **Anas boschas.** (132.) MALLARD.—Common during the winter, frequenting fresh water. I am inclined to believe it breeds in the county, but I never found its nest there.

28. **Anas strepera.** (135.) GADWALL.—A common winter resident. More shy and quiet than most other species, feeding most usually after twilight.

29. **Dafila acuta.** (143.) PINTAIL.—A winter resident; not common

30. **Anas americana.** (137.) BALDPATE.—The Baldpate, or Widgeon, is one of the most abundant of our winter Ducks. Few, if any, remain to breed.

31. ***Anas carolinensis.** (139.) GREEN-WINGED TEAL.—This is one of the most abundant and generally diffused of our Ducks, it being found during the wet season in almost every little stream or pool. A few breed in the county.

32. ***Anas cyanoptera.** (141.) CINNAMON TEAL.—The Cinnamon Teal is resident in the county, but is most common during the summer.

33. **Spatula clypeata.** (142.) SHOVELLER.—This Duck is a common winter resident.

34. ***Aix sponsa.** (144.) WOOD DUCK.—This handsome Duck is found throughout the year in greater or less abundance.

35. ***Aythya americana.** (146.) REDHEAD.—This seems to be a common resident of the county. I obtained what I take to be its eggs in May.

36. **Aythya vallisneria.** (147.) CANVAS-BACK.—The Canvas-back is a common winter resident.

37. **Aythya marila nearctica.** (148.) SCAUP DUCK.—A common resident along the coast from October to April.

38. **Aythya affinis.** (149.) LESSER SCAUP DUCK.—A winter resident; not so common as the preceding.

39. **Glaucionetta clangula americana.** (151.) AMERICAN GOLDEN-EYE.—Winter resident, not common.

40. **Charitonetta albeola.** (153.) BUFFLE-HEAD.—This little Duck is a common winter resident.

41. **Oidemia deglandi.** (165.) WHITE-WINGED SCOTER.—This species I have seen occasionally in winter in the surf along the Ventura Beach.

42. **Erismatura rubida.** (167.) RUDDY DUCK.—A common winter resident.

43. **Chen hyperborea.** (169.) LESSER SNOW GOOSE.—On November 20, 1880, I secured the only individual of this variety I ever saw in the county. In company with my friend, Mr. J. B. Alvord, I was spending a day gunning among the laguñas near the mouth of the Santa Clara River. We had stationed ourselves on dry ground between two lagoons, and were having excellent success in bringing down various species of Ducks as they, encouraged by the early morning winds, were flying from one body of water to the other. The Ducks flew usually low and were easily gotten. Thousands of Geese (*C. hyperboreus nivalis*, *C. rossii*, and *Anser albifrons gambeli*) flew overhead, but all too high for us. Finally, however, I saw a single one coming directly towards me with a number of Ducks, all flying low. Of course I brought it down, and was much pleased, on picking it up, to find I had secured a good-plumaged female of this rather rare species.

Mr. L. Belding of Stockton, Cal., regards this as a very rare species in that State. He secured one at Marysville in the winter of 1874, and another at Stockton, October 18, 1878,—these being the only ones seen by him. Each one when shot was either alone or with a small flock of Ducks. He left the wings of the first specimen with a hunting club, which was not able to duplicate them. (See Proc. U. S. Nat. Mus. 1878, 444.)

43*a*. **Chen hyperborea nivalis** (169 *a*.) SNOW GOOSE.—An abundant winter resident.

44. **Chen rossii.** (170.) ROSS'S SNOW GOOSE.—Frequent in winter associated with *C. hyperboreus nivalis*, from which it can be distinguished by its cry, which greatly resembles that of the small Cackling Goose (*Branta canadensis minima*).

45. **Anser albifrons gambeli.** (171 *a*.) AMERICAN WHITE-FRONTED GOOSE.—This is, perhaps, the most abundant of all the Geese that visit California during the winter, and is usually the first to arrive. So abundant is it in the Sacramento and San Joaquin Valleys, and so destructive are its ravages upon the growing wheat crop, that farmers often find it necessary to employ men by the month to hunt and drive them from their fields.

46. **Branta canadensis.** (172.) CANADA GOOSE.—A winter resident, but not so common as the preceding.

47. **Branta canadensis minima.** (172 *c*.) CACKLING GOOSE.—This is a common winter resident, arriving as early as October, and frequents not only the salt-marshes along the coast but also the interior valleys. It is said to be more abundant in the northern part of the State, where, with *A. gambeli*, it does great damage to the young wheat.

48. **Olor columbianus.** (180.) WHISTLING SWAN.—A frequent winter visitant to the lagunas along the coast.

49. **Olor buccinator.** (181.) TRUMPETER SWAN.—Winter visitant with the preceding species, but more common.

50. **Plegadis guarauna.** (187.) WHITE-FACED GLOSSY IBIS.—One specimen gotten near Santa Paula, May 14. This is the only specimen I ever saw in Ventura County, but on the San Joaquin Plains I found them common in July.

51. ***Botaurus lentiginosus.** (190.) AMERICAN BITTERN.—Resident; not common.

52. ***Ardea herodias.** (194.) GREAT BLUE HERON.—A common resident. Several pairs nested in the cottonwoods near the mouth of the Santa Clara River.

53. ***Ardea egretta.** (196.) AMERICAN EGRET.—Common resident among the marshes near the coast.

54. ***Ardea candidissima.** (197.) SNOWY HERON.—Resident; most frequent near the mouth of the Santa Clara River.

55. ***Ardea virescens** (201.) GREEN HERON.—Summer resident; not common. A few probably winter in the county, but most all go further south.

56. **Nycticorax nycticorax nævius** (202.) BLACK-CROWNED NIGHT HERON.—Probably resident, but not common.

57. **Grus mexicana.** (206.) SANDHILL CRANE.—Occasionally seen during the migrations.

58. ***Fulica americana.** (221.) AMERICAN COOT.—An abundant winter resident, both on the shore and in the streams and marshes. A few breed in the lagunas.

59. **Recurvirostra americana.** (225.) AMERICAN AVOCET.—I have a single specimen of this species taken on the coast near San Buenaventura, April 28, 1881. This is the only record I have of its occurrence in the county.

60. **Gallinago delicata.** (230.) WILSON'S SNIPE.—A rare winter resident, but a common spring migrant.

61. **Tringa minutilla.** (242.) LEAST SANDPIPER.—An abundant winter resident along the shore.

62. ***Ereunetes occidentalis.** (247.) WESTERN SANDPIPER.—Rather common resident.

63. **Calidris arenaria.** (248.) SANDERLING.—Abundant during the winter along the seashore.

64. **Limosa fedoa.** (249.) MARBLED GODWIT.—Probably resident along the coast. I obtained specimens near San Buenaventura, April 28.

65. **Totanus melanoleucus.** (254.) GREATER YELLOW-LEGS.—Seen frequently along the Santa Clara River. Probably resident.

66. **Numenius longirostris.** (264.) LONG-BILLED CURLEW.—Frequent along the coast except in summer prior to July, when young birds appear.

67. **Numenius hudsonicus.** (265.) HUDSONIAN CURLEW.—A winter visitant; not common.

68. ***Hæmatopus palliatus.** (286.) AMERICAN OYSTER-CATCHER.—Seen occasionally along the sea coast in summer.

69. ***Hæmatopus bachmani.** (287.) BLACK OYSTER-CATCHER.—More common as a summer resident than the former. Breeds sparingly.

70. **Charadrius squatarola.** (270.) BLACK-BELLIED PLOVER.—Rather common along the coast in winter.

71. ***Ægialitis vocifera.** (273.) KILLDEER.—Rather abundant resident.

72. ***Ægialitis nivosa.** (278.) SNOWY PLOVER.—Resident along the coast and rather abundant.

73. ***Oreortyx pictus.** (292.) MOUNTAIN PARTRIDGE.—Resident in the mountains; not common. I knew of but two or three small flocks in the county.

74. ***Callipepla californica.** (294.) CALIFORNIA PARTRIDGE.—Very abundant resident. Nests in March and April. Albinism is not infrequent; I have three beautiful cream-colored specimens secured near Santa Paula.

75. **Columba fasciata.** (312.) BAND-TAILED PIGEON.—The only specimen of this bird I ever saw in the county I got February 28, 1880, near the mouth of Santa Paula Cañon. It was a female, and was feeding upon the young balls of the sycamore, no less than thirty-five of which I took from its crop. Residents of Santa Paula inform me that it was common only a few years ago.

76. ***Zenaidura macroura.** (316.) MOURNING DOVE.—An abundant resident. Nests early in April.

77. ***Pseudogryphus californianus.** (324.) CALIFORNIA VULTURE.—Resident among the higher mountains, descending only to the valleys and cañons to feed upon carrion.

78. ***Cathartes aura.** (325.) TURKEY VULTURE.—An abundant resident. During the winter more than a hundred roosted in a grove of eucalyptus trees near Santa Paula

79. ***Elanus leucurus.** (328.) WHITE-TAILED KITE.—A rare resident. I knew of only four or five pairs in the Santa Clara Valley from the coast to the Sespe,—about twenty miles. I obtained full sets of eggs April 12.

80. ***Circus hudsonius.** (331.) MARSH HARRIER.—Resident; rather common. Nests on the ground early in April.

81. **Accipiter velox.** (332.) SHARP-SHINNED HAWK.—Seen occasionally during the winter. Probably breeds sparingly in the county.

82. ***Accipiter cooperi.** (333.) COOPER'S HAWK.—Resident, but not common.

83. *Buteo borealis calurus. (337*b*.) WESTERN RED-TAIL.—An abundant resident. Nests early in March,—sometimes even in February.

84. *Buteo lineatus elegans. (339*b*.) RED-BELLIED HAWK.—A common resident. Nests not quite as early as *calurus*.

85. *Archibuteo lagopus sancti-johannis. (347*a*.) AMERICAN ROUGH-LEGGED HAWK.—A rare resident; most numerous in winter.

86. *Haliæëtus leucocephalus. (352.) BALD EAGLE.—Resident; frequent along the coast. I was always sure to see a pair or more whenever I visited Rincon Point,—up the coast from San Buenaventura.

87. *Tinnunculus sparverius. (360.) SPARROW HAWK.—A common resident. I have found it nesting in the deserted nests of the Magpie.

88. *Strix flammeus americanus. (365.) AMERICAN BARN OWL.—An abundant resident in suitable places. It most frequents the deeper barancas, steep cliffs, and the dense foliage of live-oaks. In winter this Owl seems somewhat gregarious, as I have seen a drove of more than fifty among the oaks in Canada de Largo, six or seven miles from San Buenaventura.

Breeds in February and March, in holes in the steep banks of barancas, in cliffs, in old buildings, or in hollow trees.

On March 5, 1881, my friend, Fred Cary, and I secured over 45 eggs from Ricker's Baranca, which is just east of Santa Paula. We found the Owls occupying holes in the sides of the baranca. By means of a rope we were able to get down to the nests, into eleven of which we dug. One of these contained nothing. From six others we took 44 eggs, the sets ranging from six to ten eggs each. Of the remaining nests, one contained 5 eggs, another 6 eggs and 1 young bird, another 4 eggs and 5 young birds, varying in size from one just from the shell to one a week or more old.

89. *Asio wilsonianus. (366.) AMERICAN LONG-EARED OWL.—An abundant resident; found dozing during the day among the live-oaks or the groves of willows along the streams. The old nests of Crows are generally appropriated by it in which to lay its eggs. I have found eggs of this Owl as early as February 13.

90. *Megascops asio. (373.) SCREECH OWL.—Common resident. I am not able to refer any specimens I have seen to any other variety.

91. *Bubo virginianus subarcticus. (375*a*.) WESTERN HORNED OWL.—Resident, common; nests early in February

92. *Speotyto cunicularia hypogæa. (378.) BURROWING OWL.—Resident; common and generally distributed. Nests early in April, laying from 5 to 11 eggs.

93. *Geococcyx californianus. (385.) ROAD-RUNNER.—A rather common resident; most frequent among the cactus patches. Nests early in March and April.

94. *Ceryle alcyon. (390.) BELTED KINGFISHER.—Resident, but does not seem to be common in any part of the county.

95. *Dryobates villosus harrisi. (393*c*.) HARRIS'S WOODPECKER.—Resident throughout the year; common. Nests early in March. I have

frequently observed a tendency toward albinism among individuals of this species.

96. ***Dryobates pubescens gairdneri.** (394*a*.) GAIRDNER'S WOODPECKER.—A common resident and generally distributed.

97. ***Dryobates nuttalli.** (397.) NUTTALL'S WOODPECKER.—Resident, but not so common as the preceding.

98. ***Melanerpes formicivorus bairdi.** (407.) CALIFORNIA WOODPECKER.—Resident and locally abundant. About ten miles from Santa Paula is the Ojai Valley which, shut off from the coast winds by a spur of the Coast Range, is thickly set with live- and white-oaks. Among these this Woodpecker is very common, and is by far the most conspicuous bird of the valley. Almost all the available space on the dead limbs seems to have been used by these industrious birds, which drill these limbs full of holes, and into these they drive great quantities of acorns.

99. **Melanerpes torquatus.** (408.) LEWIS'S WOODPECKER.—I have taken this handsome Woodpecker at Newhall (40 miles up the Valley from Santa Paula) and at Pacheco Pass, but never saw it but once (November 2, 1880) in Ventura County. I think it only a winter visitant here.

100. ***Colaptes cafer.** (413.) RED-SHAFTED FLICKER.—An abundant resident. Individuals are occasionally seen grading into *hybridus*. On January 12, 1881, I took a most beautiful albino of this species.

(*To be concluded.*)

AN ORNITHOLOGICAL RECONNAISSANCE IN WESTERN NORTH CAROLINA.

BY WILLIAM BREWSTER.

QUITE unaccountably the mountain region of Western North Carolina, Northwestern South Carolina, and Northern Georgia has remained, up to the present time, a *terra incognita* to ornithologists. Speculations as to its bird-fauna have been more or less freely indulged in, and a general impression has prevailed that many of our so-called northern birds regularly summer and breed there; while daring prophets have even hinted that it would prove the home of certain 'lost' or imperfectly known species, such as Cuvier's Kinglet, the Carbonated Warbler, Bachman's Warbler, etc. But despite these interesting probabilities and possibilities, the march of actual investigation has been directed into other channels, leaving the 'Land of the Sky' but little better known than in the days of Wilson and Audubon.

During the past season (1885) I was able to spend a short time in this attractive field. Reaching Asheville May 23, and making that town my base of operations, I first explored the neighboring country, and then visited, in succession, Smather's, a station on Hominy Creek in Buncombe County, Waynesville in Haywood County, Webster in Jackson County, and Franklin and Highlands in Macon County, returning by way of Hamburg, East La Porte, and Sylva in Jackson County.

This journey took a week, and covered a distance of about one hundred and fifty miles. At all the points just named more or less time was spent collecting specimens and notes. But, excepting at Highlands, by far the most productive and satisfactory work was done *en route*. Traveling in a light open wagon, with a driver to look after the horses, I was perfectly independent and free at any time to jump out to pursue a bird or explore a tempting bit of cover. Naturally the delays were numerous—so numerous in fact that the entire day was often spent in making a distance of twenty or thirty miles. Thus I had abundant opportunities for field work at places not to be found on the map, while the best hours for collecting were seldom wasted. In this way, as I learned years ago, an extensive region may be explored rapidly and perhaps, considering everything, to the very best advantage.

Returning to Asheville May 30, I spent another day there, and early on the morning of June 1 started for the Black Mountain Range, getting a long afternoon for the ascent, camping that night near the summit of the main ridge, and devoting most of the following day to exploring the spruce and fir forests above 5000 feet altitude. This expedition—a most interesting and fruitful one—was the last that I was able to make, for on the night of June 3 I set out for the North. Thus my entire stay extended over a period of only twelve days, and therefore was too short to allow anything like a thorough investigation, or the collecting of many specimens. But covering, as it did, the flood tide of the breeding season, when the birds were settled for the summer and in fullest song and plumage, it was worth thrice the time at any other period of the year. Moreover, while my explorations were necessarily hurried and superficial, they extended over a large area and included every variety of ground. Thus it is probable that they furnished me with a fair knowledge of the

general characteristics of the region, and something more than a glimpse at its bird life. At all events, the material results seem worth considering at some length.

By turning to a topographical map of the region it will be seen that Western North Carolina is crossed by two mountain ranges, the Blue Ridge and the Great Smoky Mountains. These ranges extend in a northeasterly and southwesterly direction, and are generally parallel, but diverge slightly towards the south, converging again and more or less completely uniting just north of the Georgia line. The country between them forms an extensive plateau from thirty to fifty miles in width and having a length within the State of about one hundred and fifty miles. This plateau varies in elevation from 2000* to 4000 feet. Its surface is exceedingly irregular, being broken everywhere by long, narrow ridges, rounded hills, and low mountains, separated by valleys of every conceivable shape, and varying depth and extent. It is also bisected at right angles by such ranges as the Nantahaleh, Cowee, Balsam, and Newfound Mountains, short but usually continuous chains of considerable elevation, which form imposing barriers, and subdivide the great central valley into several separate basins.

The plateau, as a rule, is heavily timbered and exceptionally well-watered. Every valley, however small, has its stream, usually a shallow brook of clear, cold water, flowing between banks fringed with alders or rhododendrons. There are two rivers of considerable size, the Tennessee and French Broad, which, after receiving the waters of numerous tributaries, cut their way through the Great Smoky Mountains and empty into the Ohio. Rather curiously, the entire plateau is drained in this direction, all the rivers which discharge into the Atlantic rising on the eastern slope of the Blue Ridge, and those which flow into the Gulf of Mexico on the southern slope of the combined ranges.

The principal mountain chains above mentioned include many summits which rise above 6000 feet and, it is said, upwards of twenty higher than Mt. Washington in New Hampshire. They are invariably wooded nearly or quite to their tops with various deciduous trees, chiefly oaks, maples, chestnuts, and walnuts. These at the lower and mid elevations grow to an unusual size.

* Portions of Madison County, which I did not visit, are said to be as low as 1325 feet.

but above 4500 feet are often somewhat dwarfed and stunted. In places, generally at between 3000 and 5000 feet, one finds scattered white pines or hemlocks, but rarely in sufficient numbers to form noticeable breaks in the sea of tender green foliage spread out on every side; in lake-like expanses in the valleys, rippling gently on the lower ridges, and rolling in great billows over the larger hills and mountains.

The summits and upper sides of a few of the higher mountains are covered with what is locally and very appropriately termed 'black growth.' At a distance this presents the appearance of a perfectly uniform tract or belt of a dark, sombre olive-green. It is often confined to the northern slopes, and always extends further down on northern than on southern exposures. Its lower edge is usually sharply and abruptly defined at an elevation of somewhere between 5000 and 6000 feet. This black growth is made up chiefly of spruces (*Abies nigra*) and firs (*A. fraseri*), which, on the Black Mountains at least, are in the numerical proportion of about one fir to five or six spruces.* Intermixed rather plentifully with these evergreens are birches (*Betula lutea*) and mountain ashes (*Pyrus americana*), the former of fair size, the latter stunted. I noticed no other trees and few shrubs except occasional rhododendrons.

Much of the low country, especially those portions bordering or near the larger streams, is under cultivation, tobacco being the favorite and most profitable crop. Extensive areas, however, are everywhere still clothed in forest, either of vigorous second-growth or fine old timber. It is impossible, within the limits of this article, to give anything like a definite idea of these woods, for they vary greatly at different localities and elevations, and include an endless variety of trees and shrubs. In a general way, however, it may be enough to say that the growth along the streams is chiefly red birches (*Betula nigra*), sycamores (*Platanus occidentalis*), red maples (*Acer rubrum*), water oaks (*Quercus aquatica*), and sweet gums (*Liquidambar styraciflua*); that of the lower and sandier hills, scrubby oaks and pines (principally *Pinus inops* and *P. rigida*); and of the lower mountain sides and 'coves' (as the wide, fertile valleys that extend in be-

* The mountaineers confound these very distinct trees under the general term 'balsams,' by which they are known throughout the region.

tween outlying spurs of the mountains are called) black walnuts (*Juglans nigra*), tulip trees (*Liriodendron tulipifera*), basswoods (*Tilia*), and oaks of many different species.

A conspicuous feature of the plateau region at large is its extensive tracts of rhododendrons or 'laurels.' These form the principal undergrowth along streams, over damp hillsides, and throughout swampy or springy land, and, in many places, they grow in such tangled thickets that it is impossible for a man to penetrate them without the aid of an axe. On drier ground, however, the old growth is entirely devoid of underbrush. Its surface is so smooth and free from rocks or holes that one may often leave the road and drive for miles between the trees without meeting any more serious obstruction than an occasional crumbling log or fallen top. In many places, especially on the higher plateaus where the growth is largely of white oaks, the trees are scattered about in groups or singly at intervals of one or more hundred feet, with grassy openings between, giving the country a park-like appearance. Generally, in fact almost universally, the old timber is of the finest quality, many of the trees rising fifty or more feet to the first limb, and at the base measuring fifteen to twenty in circumference. But that deadly enemy of all forests, the lumberman, has already begun his inroads, and the grand old oaks, tulip trees, and black walnuts that have resisted the storms of centuries must soon fall before his merciless axe.

The region thus roughly outlined and described has been long known to tourists and sportsmen, and for many years has formed an attractive and popular summer resort. Various writers have praised its picturesque scenery and delightful climate. The botanists have been active there, and, thanks to the labors of Gray, Chickering, Vasey, and others, its flora is comparatively well known. But its ornithology has been so nearly neglected that I know of only one contribution based on actual field work, a paper by Professor Cope in an old number of the American Naturalist.* In this paper the writer mentions finding "in the high valley of Henderson County, and on the Black, Rich, and other mountains in southern North Carolina," such northern birds and mammals as *Junco hyemalis*, *Vireo solitarius*, *Dendroica coronata*, *D. maculosa*, *D. virens*, *D. blackburniæ*, *D. cærules-*

* Vol. IV, No. 7, Sept. 1870, pp. 392-402.

cens, *Lynx canadensis*, and *Sciurus hudsonius*. He infers "that the region, including the crest of the Alleghany Mountains to their southern extremity in Georgia, possesses a fauna in many respects entirely different from that of the southern two-thirds of the Alleghanian fauna as defined by Verrill, and in some respects as similar to the Canadian."

His bird-collecting was done in *September*, a season when almost any suitable locality in the South is well supplied with such migratory northern birds as those just named. On this account their presence at the times and places mentioned possessed no special significance. Had Professor Cope recognized this fact, and in addition considered carefully the very different respective *elevations* at which he found his northern mammals and southern reptiles, he might have escaped conclusions which, as far as they are formulated, are unwarrantable, and which do little credit to so distinguished a naturalist, especially when it is considered that he spent upwards of two months collecting at various localities and altitudes.

From an ornithologist's standpoint the region under discussion may be easily and naturally treated as embracing three distinct faunæ, which, in all essential respects, conform closely with the Canadian, Alleghanian, and Carolinian Faunæ of Eastern North America at large. The boundaries of these divisions are determined chiefly by elevation, the Canadian occupying the tops and upper slopes of the higher mountains down to about 4500 feet, the Alleghanian the mountain sides, higher valleys, and plateaus between 4500 and 2500 feet, and the Carolinian everything below the altitude last named.

Owing to the irregular surface of the country, no one of these faunæ is continuous over a large area, for the birds, as well as the trees and shrubs, are continually changing with the elevation. I have left a valley where Mockingbirds, Bewick's Wrens, and Cardinals were singing in water oaks, sweet gums, and magnolias, climbed a mountain side covered with oaks and hickories, and inhabited by Wilson's Thrushes, Yellow-throated Vireos, and Rose-breasted Grosbeaks, and within an hour or two from the time of starting found myself in a dense spruce forest where Winter Wrens, Golden-crested Kinglets and Red-bellied Nuthatches were the most abundant and characteristic birds. Indeed, were it possible in the present state of our knowledge to indicate

accurately on the map the relative extent and position of the three faunæ by using a different color for each, as, for instance, green for the Canadian, red for the Alleghanian, and white for the Carolinian, the work when completed would certainly present a strangely patched appearance. Probably the white would predominate in extent, with red next, and green last.

The boundaries between the different faunal areas are sharply marked in places, in others only faintly so, one set of birds often overlapping and mingling with another throughout a belt of neutral ground. The line of separation between the Canadian and Alleghanian divisions, so far as I observed, is better defined than that between the Alleghanian and Carolinian. The Canadian Fauna is also purer than either of the other two. Thus on Black Mountain, at about 5000 feet, I found only three species (*Parus carolinensis*, *Cathartes aura*, and *Colinus virginianus*) which are not common and more or less characteristic forms of the Canadian Fauna of New England: whereas double this number of Carolinian forms extended upward into Alleghanian areas, and as many more Alleghanian birds downward over Carolinian territory. The lowest valleys of all possess a few Louisianian species, such as *Dendroica dominica* and *Peucæa bachmani;* but this infusion is too inconsiderable to be of much practical importance.

An interesting feature, more or less noticeable in each of the three faunal divisions just mentioned, is the unusual restriction of certain species and the general distribution of others. Thus *Dendroica blackburniæ* and *D. cærulescens*, elsewhere mainly confined to the Canadian Fauna, were here found in equal or even greater abundance over most of the Alleghanian. *Parus carolinensis*, *Lophophanes bicolor*, and *Sciurus motacilla* ranged from the lowest valleys nearly to, and in some cases actually above, 4500 feet; while *Dendroica virens*, in the North common alike to the Canadian and Alleghanian Faunæ, was met with only in the 'balsams' at high elevations on the Black Mountains.

With these and a few similar cases it is evident that altitude plays only a secondary part, various local conditions—such as the presence or absence of certain trees or shrubs — having clearly more influence. *Dendroica virens*, for example, was seen only where spruces and balsams predominated over other trees, and

D. cærulescens invariably in or near extensive tracts of rhododendrons. For the rest it will not do to draw the lines too closely in a region where a bird can easily fly, in a few minutes, from a valley filled with southern trees and shrubs to a mountain summit clothed with northern Coniferæ. Indeed, it is chiefly surprising that faunal lines can be drawn at all under such conditions.

Another curious fact is the apparent absence in the breeding season of many northern birds which might be reasonably expected to occur. That such non-migratory species as *Perisoreus canadensis*, *Picoides arcticus* et *americanus*, and *Dendragopus canadensis* have never discovered these isolated spruce forests is not perhaps strange; but why should not the migratory *Turdus swainsoni* et *pallasi*, *Dendroica coronata* et *maculosa*, and *Zonotrichia albicollis* here find, on the higher mountains, as congenial a summer home as have *Turdus fuscescens*, *Dendroica blackburniæ* et *cærulescens*, and *Junco hyemalis?* Scarcely less remarkable is the absence, at mid-altitudes, of *Helminthophila ruficapilla*, *Poœcetes gramineus*, and *Melospiza fasciata*.

Owing to the briefness of my stay and the rapidity of my movements it was impossible to collect many specimens. In most cases my material barely serves to authenticate my notes; in very few will it warrant generalizing. But as far as it goes it indicates that at least some of the northern birds inhabiting this elevated southern region have been more or less modified by the peculiar conditions of their environment. The Solitary Vireos and Juncos are decidedly larger than their northern representatives; the Robins and Black-capped Chickadees (*atricapillus*) are apparently smaller. Others again, as the Brown Creeper, Golden-crested Kinglet, and Red-bellied Nuthatch, do not differ appreciably.

The following list contains all the species that I personally and positively identified, and no others, except a few well-known and unmistakable game birds, included on the authority of local sportsmen. For obvious reasons I have restricted it to the resident and summer birds, the few migratory species, of whose occurrence during autumn or winter I have satisfactory proofs, being given in a separate category. As a catalogue of even the summer birds it must be necessarily far from complete; but it should at least serve as a starting point for future investigators.

During my stay in the mountains I was everywhere treated with such kindness and hospitality that a list of those to whom I am indebted would be too long for mention here. But as essential to the connection I must acknowledge my obligations to Mr. E. L. Boynton, of Highlands, for specimens and notes which have proved of much importance by establishing the breeding of certain birds observed during my visit to Highlands in the latter part of May. Without this confirmatory evidence I might have hesitated, at least in some cases, before assuming that the species in question were really settled for the summer, and not belated migrants on their way to higher or more northern regions.

1. * **Aix sponsa.** WOOD DUCK.—A common summer resident, breeding numerously along all the larger streams.

2. **Gallinula galeata.** FLORIDA GALLINULE.—A barber in Asheville had a live specimen displayed conspicuously in a cage on the sidewalk in front of his shop. It had been taken about May 15 in a meadow some ten miles from town, and was an object of wonder and admiration to all who passed. Seemingly contented with captivity, it was singularly tame and gentle, allowing itself to be handled without trying either to resist or escape.

3. **Actitis macularia.** SPOTTED SANDPIPER.—Found along most of the streams, but nowhere at all numerously. I saw less than a dozen in all.

4. **Philohela minor.** WOODCOCK.—Well known to the Asheville sportsmen, who assured me that one or two pairs breed regularly in an extensive swamp near that town. The species occurs most numerously in autumn.

5. **Ardea virescens.** GREEN HERON.—Several seen along the rivers in the lower valleys.

6. **Bonasa umbellus.** RUFFED GROUSE.—I did not find the 'Pheasant' (as the bird is universally called in this region) anywhere below 4000 feet, but above that altitude it was seen daily. During my visit to the Black Mountain range (June 1, 2) the males were drumming incessantly, especially at, and for a brief time after, sunset; but they were so shy that I failed to secure a specimen. At Highlands I examined several skins taken in the immediate vicinity and found them essentially similar to the bright reddish bird of Eastern Virginia. The mountain people of Western North Carolina say that the Pheasant is quite as numerous in the valleys as at high elevations. This may be true of autumn and winter, but I doubt if it is of the breeding season also. The species occurs as far east as Old Fort, where it is well known to the hunters, one of whom showed me the tail of a specimen that he had killed. At Salisbury, among the foothills one hundred miles or more further eastward, I was told that it is never seen.

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* The arrangement and nomenclature are in accordance with the new A. O. U. Check-List.

7. **Colinus virginianus.** BOB-WHITE.—Abundant everywhere, in grain fields in the valleys, oak woodland over the mountain sides, and throughout the balsam forests that cover the higher peaks and ridges. On the Black Mountains I killed three (at 5000 feet altitude) in dense spruces where Winter Wrens, Golden-crested Kinglets, and other 'Canadian' species were among the most numerous birds. Others were heard calling still higher up, and my guide assured me that he had often seen them on the very summit of Mitchell's High Peak (6688 feet). The specimens just mentioned are large, light colored birds, in no appreciable way different from Massachusetts examples.

8. **Meleagris gallopavo.** WILD TURKEY.—Abundant everywhere, ranging, according to the hunters, over the highest mountains, and breeding quite as numerously throughout the black growth above 5000 feet as in the hardwood forests below.

9. **Zenaidura macroura.** CAROLINA DOVE.—The Turtle Dove was occasionally seen near Asheville, and also at Franklin, but not elsewhere. The Wild Pigeon (*Ectopistes migratorius*) is said to occur in autumn in large numbers, especially when beech mast is abundant.

10. **Cathartes aura.** TURKEY BUZZARD.—Although less numerous than in the coast districts of the South, the Buzzard is common and universally distributed throughout these mountains, where it is quite indifferent to elevation. It is said to breed in crevices in the higher, more inaccessible cliffs.

11. **Falco peregrinus anatum.** DUCK HAWK.—Nearly every suitable cliff on the higher mountains was occupied by a pair of these noisy Falcons. The mountaineers say that the same birds breed in the same places many years in succession. They also believe that these unfortunate Hawks regularly 'go blind' in August, and as a natural consequence become very thin and even die of starvation.

12. **Buteo pennsylvanicus.** BROAD-WINGED HAWK.—Three specimens noted, a pair near Webster, and a single bird at about 6000 feet on the Black Mountains.

(NOTE.—The general scarcity—one may almost say absence—of Hawks in this region during the breeding season is simply unaccountable. Small birds and mammals, lizards, snakes, and other animals upon which the various species subsist are everywhere numerous, the country is wild and heavily-forested and, in short, all the necessary conditions of environment seem to be fulfilled.)

13. **Aquila chrysaëtos.** GOLDEN EAGLE.—These fine Eagles were frequently seen, usually in pairs, circling thousands of feet above the earth. They are said to breed on inaccesible cliffs and ledges of the higher mountains, whence they often descend into the valleys to prey on young lambs, geese, etc. The Bald Eagle is reported to occur in winter.

14. **Syrnium nebulosum.** BARRED OWL.—On the Black Mountains, at an elevation of about 5000 feet, I picked up a feather which unquestionably came from a Barred Owl, but whether its original owner belonged to the *alleni* stripe or to typical *nebulosum* I am of course unable to decide on such fragmentary evidence.

(NOTE.—Although I passed several nights in or near extensive forests I did not hear a single Owl of any species. The mountain people say that they are silent at this season, but very noisy during late summer and early autumn. They described several kinds well known to them, among which *Megascops asio*, *Bubo virginianus*, and *Syrnium nebulosum* were easily recognisable.)

15. **Ceryle alcyon.** BELTED KINGFISHERS.—But a single one met with —near the headwaters of the Cullasaja River in Macon County.

16. **Coccyzus americanus.** YELLOW-BILLED CUCKOO.—One at Franklin, in the heart of the village. This was the only Cuckoo of any species seen in the mountains.

17. **Dryobates villosus.** HAIRY WOODPECKER.—A male shot among the 'balsams' of the Black Mountains, at an elevation of 5700 feet, is essentially identical with our New England form,* and at once distinguishable from the birds seen at lower elevations, all of which I refer without hesitation to the following subspecies.

18. **Dryobates villosus auduboni.** SOUTHERN HAIRY WOODPECKER.—Seen occasionally at wide intervals, from the lowlands (Franklin) to an elevation of about 4000 feet (Highlands). The single example taken is precisely like specimens from Florida and Charleston, South Carolina, and very much smaller and darker than the bird above referred to true *villosus*.

19. **Dryobates pubescens.** DOWNY WOODPECKER.—Apparently rare; only two or three seen, all at about 4000 feet.

20. **Sphyrapicus varius.** YELLOW-BELLIED WOODPECKER.—The distribution of this Woodpecker in the region explored apparently corresponds exactly with that of *Contopus borealis:* thus it was found generally, but rather sparingly, over the plateau country in the southeastern corner of Macon County, and nowhere else. I shot two specimens, a male and female, both incubating. The male is a remarkable looking bird, having the lighter portions of its entire plumage deep orange or chocolate brown, instead of white or pale yellow. That this unusual color is due to a stain—perhaps derived from contact with the walls of the nesting cavity—is nearly certain, for the female—which, however, was not the mate of the male just mentioned—is of the usual color and markings. Both specimens are slightly smaller than New England ones.

21. **Ceophlœus pileatus.** PILEATED WOODPECKER.—Common and generally distributed, at least below about 4500 feet.

22. **Melanerpes erythrocephalus.** RED-HEADED WOODPECKER.—Only one specimen seen,—in a grove of girdled trees near Highlands.

23. **Colaptes auratus.** FLICKER.—Common over the mountain sides and plateaus between 3000 and 4000 feet, but not seen either above or below these limits. They were invariably very shy, and I failed to secure any, a fact to be regretted, for all looked unusually small and dark.

24. **Antrostomus vociferus.** WHIP-POOR-WILL.—Perhaps no other

* This form has been referred by some ornithologists to *leucomelas*, but with this ruling I cannot concur.

single fact shows more clearly the general absence of a true Louisianian Fauna in this region than the substitution, over even its lowest portions, of the Whip-poor-will for the Chuck-wills-widow. At just what particular point outside the encompassing mountain ranges this interchange is effected I cannot say, but certain it is that the larger bird is unknown over the length and breadth of the great central plateau, whereas the Whip-poor-will is common everywhere to at least 3500 feet. Above this elevation it does not appear to range, although from the extremity of the plateau at Highlands (4000 feet) it may be heard nightly in the valleys a few hundred feet below.

25. **Chordeiles virginianus.** NIGHTHAWK.—Common about Asheville, but not seen elsewhere. It is said to occur over the entire region, where it is universally called 'Bull-bat.'

26. **Chætura pelasgica.** CHIMNEY SWIFT.—This ubiquitous species which, in Eastern North America at least, seems to be indifferent to climate or surroundings, was more generally distributed over the region under consideration than any other bird except the Turkey Buzzard. Thus I saw it in all the valley towns, careering madly over the streets and housetops; on the Swannanoa and French Broad Rivers, skimming close to the surface and occasionally dipping down to drink; circling over the oak woods on the mountain sides; and about their summits, sweeping close to the tops of the spruces or wandering aimlessly through space in the blue dome above. Like the Buzzard, its unusual power of wing enables it to traverse miles of air almost without thought or effort, and the bird that now drinks in the Swannanoa may be, a few moments later, hawking for insects above Mitchell's High Peak, twenty miles away. Nevertheless the species certainly nests, as well as flies, at various elevations, for I saw it entering chimneys in the towns, and hollow oaks high on the mountain sides.

27. **Trochilus colubris.** RUBY-THROATED HUMMINGBIRD.—Rather common, ranging from 2000 to 5000 feet.

28. **Tyrannus tyrannus.** KINGBIRD.—Seen only about Asheville, where a few haunted the shade trees in the town and the belt of timber bordering the Swannanoa River.

29. **Myiarchus crinitus.** GREAT CRESTED FLYCATCHER.—A common and very generally distributed species, ranging from the lower valleys up to at least 4500 feet. Naturally the open oak woodlands were its favorite haunts, and throughout these its loud, penetrating call was one of the most characteristic sounds.

30. **Sayornis phœbe.** PHŒBE.—Very common along streams, nesting usually, if not exclusively, under rocks and earth banks away from buildings. I did not find it at a greater elevation than 3000 feet.

31. **Contopus borealis.** OLIVE-SIDED FLYCATCHER.—Over the extensive plateau occupying the extreme southeastern corner of Macon County this fine Flycatcher was not uncommon. As in New England, it was usually found about the edges of clearings or along the courses of the mountain streams where, perched on the slender pinnacle of some tall

pine or hemlock, it sent its loud notes ringing over the neighboring country. At Highlands several pairs were established, and apparently preparing to breed, in a white pine swamp near the heart of the village. A specimen shot here is identical with northern ones. I did not find the species on the Black Mountains.

32. **Contopus virens.** WOOD PEWEE.—In most of the extensive forests visited, from the lower valleys to about 4000 feet, I occasionally heard the sad, plaintive voice of the Wood Pewee. It was commonest in the open woodlands about Highlands, but even here was not really numerous.

33. **Empidonax acadicus.** ACADIAN FLYCATCHER.—Everywhere below 3000 feet this Flycatcher was a very common species, inhabiting all kinds of cover, but occurring most numerously in rhododendron thickets bordering streams, where its abrupt, explosive note of *wicky-up* could be heard at all times of the day. It is one of the tamest and least suspicious of the small Flycatchers, but owing to its retiring disposition, and habit of sitting perfectly motionless among the foliage, it is much oftener heard than seen.

34. **Empidonax minimus.** LEAST FLYCATCHER.—Of sparce, but at the same time general, distribution, nowhere common. Thus a day rarely passed without two or three being noted, while I do not remember ever finding more than a pair in any one locality. They were usually met with in scrubby oak growth near streams, and were invariably very noisy, their notes and habits being precisely as at the North. The highest point at which the species was seen was about 4000 feet, the lowest 2000.

35. **Corvus corax sinuatus.** RAVEN.—Common almost everywhere above 3000 feet, below which altitude it is replaced by the Crow (*C. americanus*). Rather curiously, the two species do not seem to occur together here, at least during the breeding season. At Highlands I was told that the Ravens do not molest corn or other crops but are very destructive to poultry, killing many young chickens and turkeys. I failed to secure a specimen, but those which I saw living looked unusually large. Their notes were precisely the same as at the North. They were frequently met with in open oak woodland, and were usually pursued by Jays, Robins, and other small birds. Swannanoa, the Indian name of the beautiful little river that flows through Asheville, is said to signify "the swish of the Raven's wing."

36. **Corvus americanus.** CROW.—Common throughout the lower portions of the region, but nowhere as numerous as at the North.

37. **Cyanocitta cristata.** BLUE JAY.—Abundant everywhere, ranging over the tops of even the higher mountains, where I often heard its shrill voice among the balsams. It is most numerous, however, in open oak woodland at mid-elevations.

38. **Agelaius phœniceus.** RED-WINGED BLACKBIRD—Apparently confined to the lower valleys, where every little meadow harbored a few pairs. As meadows, even of small extent, are by no means numerous, these Blackbirds were seen in only a few localities.

39. **Sturnella magna.** MEADOW LARK.—I heard of the Meadow

Lark at several places, but did not happen to meet with it living. At Highlands two skins were shown me, and I was told that it occurs numerously in the vicinity during autumn and winter. It is said to breed sparingly throughout the region, and there can be little doubt that this is true, although I have no proof of the fact.

40. **Icterus spurius.** ORCHARD ORIOLE.—Common throughout the low country, especially in or near towns, where its rich, flowing song was frequently heard among the trees shading the noisiest streets.

41. **Icterus galbula.** BALTIMORE ORIOLE.—The distribution of this species in the region under consideration is somewhat remarkable. About Asheville it is not uncommon, and I noted several there daily, either in the fine old oaks that ornament so many of the cultivated grounds, or among the sycamores and red birches which overhang the neighboring Swannanoa. At Highlands I saw a single male — an unusally brilliant one—which I was told was the only bird of its kind in the vicinity. Elsewhere I searched for the species in vain. Of course it may occur in other localities, but throughout the region at large it is certainly rare and very locally distributed.

42. **Quiscalus quiscula?** PURPLE GRACKLE.—At Asheville several pairs of Crow Blackbirds were breeding in a cluster of white pines in the heart of the town. Of course it was impossible to shoot any of them here—hence the ? attached to the specific name, which possibly should be followed by the sub-specific term *æneus*. As nearly as I could make out, however,—and I had a close view of several of the males—the form was true *quiscula*.

43. **Carpodacus purpureus.** PURPLE FINCH.—At Old Fort, May 23, the Purple Finch was abundant, in full song, and apparently breeding, but to my surprise it was not afterwards met with, although I searched for it carefully, especially in the balsam forests on the Black Mountains.

44. **Loxia curvirostra minor.** AMERICAN RED CROSSBILL.—Seen only on the Black Mountains, where it was numerous in small flocks throughout the balsam forests above 5000 feet. At Highlands I was told that it regularly appeared in winter about the outskirts of the town. I failed to secure specimens.

45. **Spinus tristis.** AMERICAN GOLDFINCH.—Nowhere very numerous, but generally distributed over the low country and mountain sides to at least 5000 feet.

46. **Spinus pinus.** PINE LINNET.—On the morning of June 2 I found these Linnets rather numerous near the lower ledge of the balsams on the Black Mountains at an elevation of about 5200 feet. They were not seen above this point, but they doubtless range over the upper portions of these mountains, as well as, probably, other extensive tracts of 'black growth' in the surrounding region. The males were in full song at the time of my visit.

47. **Ammodramus savanarum passerinus.** YELLOW-WINGED SPARROW.—In sandy, sorrel-grown fields near Franklin these Sparrows were common and apparently breeding. The species was not seen elsewhere.

48. **Spizella socialis.** CHIPPING SPARROW.—Quite as common, ubiquitous, and familiar as in New England. I did not find it above 4000 feet.

49. **Spizella pusilla.** FIELD SPARROW.—Less numerous than the Chippy, but of equally general distribution, occurring most frequently in steep, bush-grown pastures on the mountain sides, but often in open oak or chestnut woodland. Its song differed markedly from that of our New England bird; as a rule it was higher-pitched, shriller, and less melodious.

50. Junco hyemalis carolinensis, susp. nov. CAROLINA JUNCO.

SUBSP. CHAR :—Differing from *J. hyemalis* in being larger, with lighter, bluer, and more uniform coloration, and a horn-colored, instead of pinkish-white or yellowish, bill.

♂ ad. (No. 10597, Black Mt., North Carolina, June 2, 1885. W. B.). Middle of breast behind and of the belly, under tail-coverts, and outer three tail-feathers, white, the third feather with a narrow inner edging of slate-color; remainder of plumage deep bluish or ashy plumbeous, the crown and back concolor, the throat a shade lighter, no blackish anywhere except on the wings and tail, the feathers of which are nearly, if not quite, black with grayish-plumbeous outer edging; bill (in the dried specimen, I unfortunately neglected to note its color in fresh birds) dark horn-color. Wing, 3.20; tail, 2.70; bill, .51.

♀ ad. (No. 10567, Highlands, N. C., May 28, 1885. W. B.) Smaller than the ♂ and generally lighter colored, with a tinge of brownish above

MEASUREMENTS.

Junco hyemalis carolinensis.

Cat. No. Col. W. B.	Sex.	Locality.	Date.	Wing.	Tail.	Culmen from base.	Culmen from feathers.	Culmen from nostril.	Depth of bill at nostril.	Remarks.
10566	♂ ad.	Highlands, N. C. . . .	May 28, '85	3.09	2.80	.50	.43	.33	.25	
10593	♂ ad.	Black Mountain, N. C.	June 1, "	3.20	2.80	.52	.43	.35	.24	
10594	♂ ad.	" " "	" 1, "	3.17	2.82	.55	.45	.35	.24	
10597	♂ ad.	" " "	" 2, "	3.20	2.70	.51	.43	.35	.25	Type.
10559	♀ ad.	Highlands, "	May 28, "	3.05	2.86	.50	.46	.30	.25	
10567	♀ ad.	" " "	" " "	2.98	2.67	.51	.43	.33	.23	Type.

J. hyemalis.

2741	♂ ad.	Upton, Me.	June 12, '72	3.04	2.65	.50	.40	.33	.24	
2742	♂ ad.	" "	" 12, "	2.95	2.61	.50	.42	.32	.25	
9701	♂ ad.	Shelburne, N. H. . . .	July 21, '84	2.97	2.73	.49	.40	.32	.23	
9333	♂ ad.	Mt. Washington, N.H.	" 12, "	3.12	2.65	.47	.40	.31	.23	
9335	♀ ad.	" " "	" 12, "	2.80	2.47	.46	.41	.31	.25	
9344	♀ ad.	Shelburne, "	" 15, "	2.85	2.55	.50	.42	.33	.23	

I should hesitate to propose a new race in a group which has already given so much trouble, were it not that the characters just mentioned are remarkably constant in the series of six specimen before me. The bird is much larger than *hyemalis*, and its general coloring is lighter, clearer, and bluer, as well as more uniform, the crown being perfectly concolor with the back, which is rarely, if ever, the case in *hyemalis*. The dark color of the bill also is an apparently good point of difference, at least between the bird under consideration and *hyemalis* of New England and northward, for in a series of some fifty specimens of the latter I do not find one which posesses this character, the bills of all being straw-yellow with sometimes a pinkish suffusion. Among a smaller number taken in early spring at Washington, D. C., however, are several with bills colored precisely as in the North Carolina birds. In other respects, however, these specimens are identical with *hyemalis* proper. It is probable that they represent the form which breeds on the mountains of Virginia and Pennsylvania and which naturally would be in varying degrees intermediate between the extreme northern and southern types. Linnæus, it should be mentioned, based his *Fringilla hyemalis* on the *F. nivalis** of Catesby, but the latter author's description clearly relates to our northern bird, which occurs numerously in winter throughout the low country of the Carolinas, while this large form appears to be resident in the mountains.

This new and interesting race of our northern Junco was found only at Highlands and on the Black Mountains, but it doubtless occurs at other points wherever the country is sufficiently elevated to suit its boreal temperament. About Highlands it was seen everywhere; flitting along the snake fences that border the fields and roads, twittering shyly in the depths of the 'laurel' swamps, flirting unexpectedly from beneath the oaks in the open woodlands, and on the grassy, wind-swept mountain summits, hopping fearlessly among our horses or peering curiously at their riders.

On the Black Mountains it was decidedly the commonest bird, ranging from an elevation of about 4300 feet to the very top of Mitchell's High Peak. It was here found quite as numerously in the hardwood forests below 5000 feet as among the spruces and balsams above that altitude. The mountain people call it 'Snowbird,' and say that it spends the winter in the lower and more sheltered valleys, returning to the mountain sides as soon as spring begins. Thus it is doubtless a local and essentially resident form.

I am indebted to Mr. Boynton for two sets of four eggs each, with the nests, taken at Highlands, respectively June 30 and July 7, 1885. The eggs are larger than those of *hyemalis* but similar in color and markings. The nests are also larger and composed of coarser material, although both are lined neatly with horse-hair. The one collected July 7 was placed "in a bank by the roadside," a site often chosen by our northern bird, but the other was built in "a berry bush in a garden, *four feet above the ground*," and hence in a situation never occupied, I believe, by the nest of *hyemalis*.

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* Catesby's Car., I, p. 37.

Both sets of eggs were perfectly fresh, a fact which proves that the bird breeds very irregularly and probably at least twice in the same season, for I saw young on wing as early as May 29, and on the preceding day was shown a nest which the birds were just finishing.

51. **Peucæa æstivalis bachmani.** BACHMAN'S FINCH.—A single specimen, taken at Franklin, was the only one met with. It was singing in an old field grown up to sassafras sprouts. This specimen is in many respects unlike any in my large series from South Carolina, Alabama, Texas, and Illinois. In certain particulars, especially the size and shape of the bill, and the color and markings of the upper parts, it bears a close resemblance to *P. arizonæ*. Probably these peculiarities are individual; but I note them for the benefit of those who may have an opportunity of examining more material from this region.

52. **Pipilo erythrophthalmus.** RED-EYED TOWHEE.—Generally distributed, but nowhere very common. Its favorite haunts were thickets along wood edges, and brush-grown fences. The song was uniformly unlike that of our New England bird, but it varied so with different individuals and in different localities that this fact has little significance. I shot only one specimen, a female, which had the irides of the usual deep red.

53. **Cardinalis cardinalis.** CARDINAL GROSBEAK.—Confined to the lower valleys, where it was usually found in thickets along streams. It was nowhere at all numerous; indeed I rarely saw more than one or two pairs in a single day.

54. **Habia ludoviciana.** ROSE-BREASTED GROSBEAK.—I found this species only in the country about Highlands and on the Black Mountains. In the former locality it ranged from (approximately) 3500 to 4500 feet; in the latter from 3800 to 5000 feet; in both it was far more abundant than I have ever seen it at the North. Its favorite haunts were the open oak woodlands so frequently mentioned in this paper. Throughout these, at all times of the day, I was rarely out of hearing of its voice. The song did not seem to differ from that of our northern bird, but what a superb performance it is whenever heard—so rich, flowing, and withal so tender and plaintive! I know of no bird-voice more expressive of feeling and sentiment.

55. **Guiraca cærulea.** BLUE GROSBEAK.—I met with only a single specimen of this species, a female seen June 1, in an apple orchard near Asheville. This bird was at one time within a few feet of me, and I have no doubt whatever as to its identity.

56. **Passerina cyanea.** INDIGO BIRD.—Abundant everywhere, ranging upward to at least 4500 feet. Especially numerous about the edges of pastures and other clearings on the mountain sides, but also very generally distributed throughout open woodland. Song and habits normal.

57. **Piranga erythromelas.** SCARLET TANAGER.—Abundant everywhere in hardwood timber and second growth, ranging from the lower valleys nearly or quite to 5000 feet (Black Mountains). The song is normal, the call note *chip-churr*, as in New England, not *chip-prairie*, as in Southern Illinois. My single specimen shows no peculiarities.

58. **Piranga rubra.** SUMMER TANAGER.— It is probable that this species occurs more or less commonly and generally over the lower portions of the plateau region, but I found it only on the eastern slope of the Blue Ridge, at Old Fort, where it was about as numerous as *P. erythromelas.*

59. **Progne subis.** PURPLE MARTIN.— Common in most of the towns and villages, building chiefly if not wholly in Martin boxes.

60. **Stelgidopteryx serripennis.** ROUGH-WINGED SWALLOW.— The characteristic Swallow of the valley region, common almost everywhere throughout the settled country up to about 2500 feet, and nesting in ledges and clay banks formed by railroad cuttings or the erosion of streams.

(NOTE.— I believe I saw the Bank Swallow once or twice, but I did not identify it fully. The Barn, White-bellied, and Eave Swallows were apparently absent.

61. **Ampelis cedrorum.** CEDAR BIRD.—Very common everywhere. Seen in greatest numbers along streams, catching flies over the water. On the Black Mountains I found a pair which were apparently about to breed in some spruces bordering a clearing at 5000 feet altitude.

62. Vireo solitarius alticola, subsp. nov. MOUNTAIN SOLITARY VIREO.

SUBSP. CHAR.—Differing from *solitarius* proper in being larger, with a stouter bill, and duller, darker, and more uniform coloring above.

♂ ad. (No. 10577, Highlands, Macon County, North Carolina, May 29, 1885. W. Brewster). Above dusky, almost blackish, plumbeous, slightly tinged with greenish on the rump, back and wings; beneath white, the sides yellow, washed with dusky-olive; wings dark brown, all the feathers except the first primary with light, slightly greenish outer edges and white inner ones; the wing-coverts tipped with dull white, forming two bands; tail-feathers similar, but the outer pair edged externally with white, the inner pair without white on their inner margins; a narrow white ring encircling the eye, interrupted anteriorly by a blackish loral spot, and beyond this extending forward to the nostril in an imperfectly-defined whitish line, which is only continuous when the feathers are disarranged so as to expose their bases.

Four other specimens (three from the same locality, one from the Black Mountains), are essentially similar, but two of them have the orbital ring and line to the nostrils pure white and well defined, although it is not as broad and conspicuous in any of them as in true *solitarius.*

This new form may be easily distinguished from *solitarius* by its larger size, heavier bill, and different color of the upper parts. In *solitarius* the crown and sides of the head are clear, pure ash, in strong contrast with the olive green of the back and rump, whereas in *alticola* the entire upper parts are nearly uniform blackish-plumbeous, with only a faint tinge of greenish on the back, which is essentially concolor with the crown. In these respects the bird resembles *V. plumbeus*, but its coloring above is darker and dingier, its sides strongly yellowish, as in *solitarius.* From *cassini* and *propinqua* it differs too widely to require special comparison.

Habitat. Mountains of Western North Carolina.

MEASUREMEMENTS.

Vireo solitarius alticola.

Cat. No. Col. W. B.	Sex.	Location.	Date.	Wing.	Tail.	Tarsus.	Culmen from base.	Culmen from feathers.	Culmen from nostril.	Depth of bill at nostril.	Remarks.
10554	♂	Highlands, N. C. . . .	May 27, '85	3.23	2.31	.72	.55	.44	.31	.17	
10555	♂	" "	" " "	3.03	2.21	.75	.52	.40	.30	.17	
10503	♂	" "	" 28, "	3.05	2.22	.72	.60	.49	.36	.20	
10577	♂	" "	" 29, "	3.16	2.30	.75	.60	.48	.35	.18	Type.
10607	♂	Black Mountain, N. C.	June 2, "	3.30	2.30	.73	.59	.46	.36	.18	

Vireo solitarius.

9350	♂ ad.	Shelburne, N. H. . . .	July 15, '84	2.95	2.17	.75	.57	.41	.31	.16	
9293	♂ ad.	" "	" 8, "	2.86	2.15	.73	.56	.41	.32	.15	
7386	♂ ad.	" "	" 7, '82	2.84	2.05	.69	.49	.37	.27	.15	
4593	♂ ad.	Upton, Maine	May 27, '79	2.82	2.05	.71	.51	.40	.30	.16	
5391	♂ ad.	" "	" 15, '81	2.98	2.25	.72	.57	.41	.30	.16	

Throughout the elevated plateau occupying the southeastern corner of Macon County, this new Vireo was one of the most abundant forest birds. It was found exclusively in open oak and chestnut woods, where its ringing voice, mingling with the rich music of the equally numerous Grosbeaks (*Habia ludoviciana*) and Scarlet Tanagers (*Piranga erythromelas*), was rarely still even at noontide. Its song was somewhat like that of *solitarius*, but to my ear much finer, many of the notes being louder and sweeter, and the whole performance more continuous and flowing.

On the Black Mountains it was also a very common and conspicuous bird, ranging from about 4200 feet to the lower edge of the balsams (5000 feet) and inhabiting woods similar to those just described.

(*To be concluded.*)

ADDITIONS TO THE CATALOGUE OF KANSAS BIRDS.

BY N. S. GOSS.

Since the publication of my Catalogue of the Birds of Kansas in 1883, the following additions* have been made, which I here

* [The nomenclature here followed is that of the forthcoming A. O. U. Check List. —Edd.]

give in advance of the new work I am preparing on Kansas birds, the publication of which is delayed in order to enable me to adopt the classification and nomenclature of the new A. O. U. Check-List now in press. As some of these additions have been already recorded in 'The Auk,' it is thought sufficient in this connection to merely refer to the place of record.

1. **Tachypetes aquila.** Man-of-War Bird.—A straggler. Mr. Frank Lewis, of Downs, Kansas, reports to me the capture of this bird on the North Fork of the Solomon River, Osborne County, August 16, 1880. It was killed with a stone while sitting on a tree. The specimen has passed out of his hands; but he sends me a photograph of the bird, taken after it was mounted, which removes all doubts as to its identification. The birds are strictly maritime, and largely parasitical in habits. Their home is on the coast of tropical and sub-tropical America. They are known to be great wanderers along the sea-board; but this is, I think, the first record of its being found away from the coast, and to straggle so far inland it must surely have been crazed or bewildered.

2. **Anas fulvigula.** Florida Duck.—Migratory; rare. Arrives about the middle of March. I captured a female at Neosho Falls, March 11, 1876. I have shot one since, and observed two others in the State. The birds were entered in my first Catalogue as *A. obscura*.

3. **Porzana noveboracensis.** Little Yellow Rail.—Summer resident. Rare. Prof. L. L. Dyche, Curator of Birds and Mammals, State University, writes me that April 18, 1885, he captured one of the birds (a female) on low, wet land, about five miles southeast of Lawrence. The specimen is mounted, and in the fine collection under his charge. It is the first bird, to my knowledge, captured or seen in the State. But this is not strange, as the birds inhabit the marshy grounds, and at the least alarm, run, skulk, and hide in the reeds or grass, and it is next to impossible to force them to take wing. Therefore it is seldom seen, even where known to be common. I enter the bird as a summer resident, because it has been found both north and south of us, and is known to breed within this geographical range. Nests on the ground.

October 1, Professor Dyche captured on the Wakarusa bottom lands, two and a half miles south of Lawrence, another of the little birds, a female, and he thinks a *young* bird. The lucky finds were both caught by his dog.

4. **Gallinula galeata.** Florida Gallinule.—Prof. F. H. Snow writes me, under date of October 20, 1885, that since the publication of his 'Birds of Kansas,' in 1875, he has personally obtained in the State two specimens of *Gallinula galeata*. The first was captured by himself, June 14, 1878, on the Hackberry, in Gove county. The second, by a friend in the vicinity of Lawrence. The bird was entered in his Catalogue on the authority of Professor Baird, and at the time of the publication of my Catalogue, in 1883, they were known to breed both north and south of the State, and it was therefore safe to enter it as a Kansas bird. But my

List only embraced the birds that came under my observation, and that of others as reported to me. From the fact that the birds nest throughout their geographical range, and from its capture so late in June, I enter it as a rare summer resident. I have found the birds nesting in Wisconsin as early as the middle of May. They nest in rushes and reeds growing in shallow water, or on swampy lands, building on the tops of old broken down stalks. The nest is composed of weeds and grasses; also the leaves of the cat-tail flag, when growing in the vicinity. It is a circular structure, and in some cases quite deep and bulky. Eggs usually eight to ten, buff white, thinly spotted and splashed with varying shades of reddish brown. One set of thirteen, collected May 25, 1878, on a bog in Pewaukee Lake, Wisconsin, measured as follows: 1.63 × 1.18; 1.84 × 1.27; 1.67 × 1.18; 1.60 × 1.16; 1.67 × 1.18; 1.78 × 1.30; 1.81 × 1.29; 1.79 × 1.29; 1.88 × 1.27; 1.70 × 1.16; 1.80 × 1.30; 1.75 × 1.18; 1.80 × 1.28.

5. **Himantopus mexicanus.** Black-necked Stilt.—Mr. W. H. Gibson, taxidermist, formerly of Topeka, now of Las Vegas, New Mexico, informs me that he saw three of these birds about the middle of June, 1881, on low, wet ground, near the Arkansas River, at Lakin. Without doubt, the birds occasionally breed in Southwestern Kansas.

6. **Buteo borealis krideri.** Krider's Hawk.—See Auk, I, Jan. 1884, p. 100.

7. **Geococcyx californianus.** Chaparral Cock.—An occasional visitant to Western Kansas. Mr. Charles Dyer, Div. Supt. of the A. T. & S. F. R. R., at Las Vegas, New Mexico, writes me that in September, 1884, he saw two of the birds near the railroad, and about fifteen miles east of the west line of the State, and that he has seen them quite often in Colorado, near the State line. The birds are known to breed as far east as Las Animas, and I feel confident that they occasionally breed in the southwestern corner of this State,—a natural habitat of the birds, but unsettled and little known, especially as to its bird life.

8. **Bubo virginianus subarcticus.** Western Horned Owl.—October 29, 1885, I shot a male in the timber skirting the south fork of Beaver Creek, in Rawlins County.

9. **Sphyrapicus varius nuchalis.** Red naped Sapsucker.—See Auk, I, Jan. 1884, p. 100.

10. **Passerculus sandwichensis alaudinus.** Western Savanna Sparrow.—Migratory. October 14, 1885, I shot one of the birds, a male, near Lake Inman, in McPherson County, and saw several others. I am inclined to think they will prove to be quite a common bird in the western part of the State, but they so closely resemble *P. sandwichensis savanna* that they have not been noticed. The birds are, however, considerably smaller and paler in color—a bleached race of the Plains.

11. **Zonotrichia intermedia.** Intermediate Sparrow.—See Auk, I, Jan. 1884, p. 100.

12 **Passerina ciris.** Nonpareil.—See Auk, II, July, 1885, p. 276.

13. **Vireo atricapillus.** Black-capped Vireo.—See Auk, II, July 1885, p. 274.

14. **Icteria virens longicauda.** Long-tailed Chat.—A summer resident in the western part of the State; not uncommon. In habits and actions it resembles the Yellow-breasted Chat, but its note and song are slightly different. The birds were reported by Prof. F. H. Snow, in Transactions of the Kansas Academy of Science, Vol. VI, p. 38, as "Taken along the Smoky Hill River, in Western Kansas by S. W. Williston, in May, 1877"; but by oversight omitted from my first Catalogue. Attention was immediately called to the same (see Bulletin of the Nuttall Ornithological Club, Vol. VIII, p. 227). June 2, 1885, I shot two of these birds on Crooked Creek, in Meade County, and saw several others.

15. **Thryothorus bewicki bairdi.** Texan Bewick Wren.—Resident; not uncommon in Southwestern Kansas. Nests in deserted Woodpecker holes, hollow logs, or any nook it may fancy; nest composed of sticks, roots, straws, and grasses, and lined with fur and a few downy feathers; quite bulky, generally filling the space, but in no case, I think, roofed over. Measurements of five eggs, taken at Corpus Christi, Texas, May 9, 1882: .63 × .50; .63 × .50; .63 × .50; .63 × .49; .62 × .49. Eggs white, speckled with light and dark shades of reddish brown, thickest around the larger end. The bird was entered in my first Catalogue as *T. bewicki.*

16. **Merula migratoria propinqua.** Western Robin.—See Auk, I, Jan. 1884, p. 100,

The following species have been found breeding in Kansas since the publication of my Catalogue.

1. **Podilymbus podiceps.** Pied-billed Grebe.
2. **Hydrochelidon nigra surinamensis.** Black Tern.
3. **Sterna antillarum.** Least Tern.
4. **Spatula clypeata.** Shoveller.
5. **Gallinula galeata.** Florida Gallinule.
6. **Porzana noveboracensis.** Little Yellow Rail.
7. **Rallus virginianus.** Virginia Rail.
8. **Aquila chrysaëtos.** Golden Eagle.
9. **Pica pica hudsonica.** American Magpie.
10. **Passerina ciris.** Nonpareil.
11. **Ammodramus caudacutus nelsoni.** Nelson's Sharp-tailed Sparrow.
12. **Vireo atricapillus.** Black-capped Vireo.
13. **Icteria virens longicauda.** Long-tailed Chat.
14. **Troglodytes aëdon parkmani.** Western House Wren.
15. **Thryothorus bewicki bairdi.** Texan Bewick's Wren.

THIRD MEETING OF THE AMERICAN ORNITHOLOGISTS' UNION.

The third meeting of the American Ornithologists' Union was held at the American Museum of Natural History in New York

City, November 17 and 18, 1885. Rather more than one-third of the Active Members were present—the same number as last year—and quite a number of Associate Members, several of whom presented papers and took part in the scientific discussions. The Secretary and Treasurer in presenting his official report referred especially to the flourishing condition of the Union, and its improved financial status over that of last year. He stated that but one death had occurred among its members since the last meeting,—that of Dr. H. A. Atkins, of Locke, Michigan, an Associate Member, well known among ornithologists for his work on the birds of Michigan.*

The report of the Council referred to the completion and acceptance of the 'Code of Nomenclature and Check List of North American Birds,' in accordance with resolutions adopted at the last meeting of the Union. The report of the Committee on the European House Sparrow, and the documents relating to the work of the Committee, had been received by the Council, and the material gathered by the Committee had been placed at the disposal of the Department of Agriculture, and, it is expected, will be shortly published as a 'Bulletin' of the Department, under the supervision of the Ornithologist (Dr. C. Hart Merriam) in charge of the work on Economic Ornithology. The report from the Council stated, regarding memberships, that there was no vacancy in the class of Foreign Members, and only three in the class of Active Members. In view of the small number of vacancies in this class, and the fact that a desirable change in the Constitution affecting the manner of electing members to the Active list had been suggested, the Council deemed it advisable to defer further elections till the proposed constitutional amendment could be acted upon. Prof. Fernando Ferrari-Perez, Naturalist of the Mexican Geographical Exploring Commission and President of the State University of Pueblo de Saragosa, and Gustav von Hayek, Secretary of the International Ornithologists' Union, Vienna, Austria, were proposed for Corresponding Members. Both were elected, as were the candidates recommended for election to the class of Associate Members.

The amendments to the Constitution proposed last year† were all adopted.

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* See Auk, II, p. 391.

† See Auk, I, p. 370.

The reports of Committees comprised two only—that on the Geographical Distribution and Migration of North American Birds, and that on the Protection of Birds. The Chairman of the first-named Committee, Dr. C. Hart Merriam, presented a very full report, detailing at length the progress of the work and its present status, only an abstract of which can be here presented. Last fall a new and much improved form of circular was prepared and sent out, in provision for the spring migration of the present year. A special circular was also sent to keepers of lighthouses and lightships, and schedules for returns were distributed to all of the Committee's observers, some 1200 in number. These schedules, it is gratifying to observe, have been received with so much favor abroad that they have been translated and republished in several European languages, and reprinted in full in 'Ornis,' the organ of the International Ornithologists' Union.

Final reports have been received from Prof. W. W. Cooke, Dr. J. M. Wheaton, Mr. L. S. Foster, and Mr. William Dutcher; and Mr. L. Belding has in preparation a very elaborate report on the birds of California.

It became apparent more than a year ago that the work of this Committee was fast assuming such formidable proportions that the Union would soon be unable to sustain the financial burden thus entailed, and at the meeting of the Union last year the Council was instructed to prepare a memorial to Congress asking for Government aid. In considering this matter the Council decided to advise the establishment of a Division of Economic Ornithology under the Department of Agriculture, which should not only carry on the investigations necessary to a thorough understanding of the movements and distribution of our birds, but should also enter upon a systematic inquiry into their food-habits and practical relations to Agriculture. The Chairman of the Committee was accordingly requested to prepare and present a draft of a memorial, embodying this plan, to the Council, which was in due time received and approved by the Council.* The Chairman, on presenting this memorial to Congress, was accorded a hearing before the House Committee on Agriculture, through the assistance of Prof. C. V. Riley, Chief of the Division of Entomology of the Department of Agriculture. Prof. Spencer F. Baird had the kindness to appear before the Agricultural Committee and

* This memorial will be found printed in full in 'Ornis,' I, 1885, pp. 60-67.

personally urge the practical importance of the investigations thus proposed, while Senator Warner Miller, Chairman of the Committee on Agriculture, not only brought the memorial favorably to the notice of the Committee on Agriculture, but afterward made an influential speech in its behalf on the floor of the Senate, and secured for the work contemplated an appropriation of $5000, after the item had been dropped in the House. It is thus to Senator Miller that ornithologists are indebted more than to any other person for the appropriation, as without his efficient aid the appeal to Congress would have been in vain. The House Committee on Agriculture, however, placed the work under the Division of Entomology, instead of creating for it an independent division, as contemplated in the memorial.

The appropriation became available July 1, 1885, at which time the investigations in Economic Ornithology now in progress under the Department of Agriculture were begun. The Council of the Union was invited by the Commissioner of Agriculture and Professor Riley—in recognition of the interest in the work manifested by the Union, and of its efforts in securing the appropriation from Congress for these investigations—to nominate a person to take charge of, and conduct, the work. This the Council did at a meeting held in Washington on the 21st of last April, unanimously and very fittingly selecting for this position the Chairman of the A. O. U. Committee on the Migration and Geographical Distribution of North American Birds, Dr. C. Hart Merriam, to whom also had fallen the labor of presenting the memorial and securing favorable action upon it. These investigations, now in progress under Government auspices, are thus the direct outgrowth of the work of the Union, and especially of that of its Committee on the Migration and Distribution of Birds. The vast amount of valuable material gathered by this Committee has now been turned over by the Union to the Department of Agriculture, for elaboration and publication; and the returns of the A. O. U. observers are now directly sent to the Department of Agriculture, which defrays the considerable expense necessarily involved in the preparation, distribution, and collection of the schedules, as well as the preparation of the returns for publication. The very elaborate and voluminous report prepared by Professor Cooke, with the assistance of Mr. Otto Widmann and Prof. D. E. Lantz, upon 'Bird Migration in the

Mississippi Valley,' is now ready for the press, and will be issued soon as Bulletin No. 10 of the Division of Entomology.

The investigation of the food habits of birds, in reference to their relation to agriculture—a subject well recognized as of the highest practical importance—has now been in progress for several months, and the amount of material already gathered for this purpose amounts to more than 1600 bottles of contents of birds' stomachs, later to be microscopically examined by competent experts in such investigations. The method adopted for the collection of data relating to what birds eat contemplates, in addition to the collection of birds' stomachs, the employment of competent observers in the field; the enlistment in the work of intelligent farmers throughout the country; and the collation of data already published. With this object in view a circular has been issued soliciting information on various points therein specified, and the assistance of those willing to aid in the collection of birds' stomachs. Copies of these circulars were sent to about 1000 of the regular observers of the Migration Committee, and also to the editors of agricultural papers and journals, and many farmers, throughout the country. From the Committee's observers alone, it is proper to note, have come eighty-seven per cent of the replies thus far received. The Department of Agriculture has already in preparation, and will soon issue, a Bulletin devoted to this branch of inquiry. The very cursory examination already made of the material gathered shows that results of great importance may confidently be anticipated from its final elaboration.

Mr. Allen, Chairman of the Subcommittee on Geographical Distribution, said that this division of the Committee was awaiting the data collected by the Subcommittee on Migration to become available for use in conjunction with that already accumulated, before attempting the preparation of a final report, which it was expected would largely take the form of maps prepared to show the range of each species, so designed as not only to indicate its entire North American range, but its breeding range, its area of winter residence, and the portions of country over which it occurred merely as a migrant. He called on Mr. Chadbourne, a member of the Committee, to whom was assigned the district comprising New England and that portion of Canada lying south of the St. Lawrence River and Gulf, to exhibit and explain a

series of provisional maps he had already prepared for his district. This led to a very interesting discussion of methods to be pursued in this kind of work, which was participated in by Dr. Merriam, and Messrs Chadbourne, Allen, Brewster, and Sennett.

The report of the Committee on the Protection of Native Birds was made by Mr. Brewster, who stated that owing to ill health and the pressure of other duties, he had been prevented from entering actively into the work originally contemplated by the Committee, and had been obliged to resign the chairmanship. Owing to this and other adverse circumstances, the Committee had been unable to develop a systematic plan of work. He hoped the Committee would be continued, and would reorganize by choosing a chairman who could give the matter the attention and time its high importance demanded. The discussion following the report showed there was no lack of interest in the subject, and that active measures will be immediately taken towards the enlightenment of the public and the creation of a proper sentiment in relation to the wholesale slaughter of birds now going on for millinery purposes. Dr. Merriam regarded the work of this Committee as the most urgent now before the Union. The discussion, eliciting remarks also from Messrs. Brewster, Sennett, Allen, Dutcher, and others, not only led to the presentation of some startling statistics relating to the enormous destruction of bird life for hat decoration, but suggested certain lines of operation for the suppression of the evil.*

In addition to the reports of Committees, a number of interesting papers were presented, but lack of space prevents a proper notice of them in the present connection. Some of them, however, are given in the present issue *in extenso*, and others will doubtless appear in later numbers of 'The Auk.' Mr. E. P. Bicknell presented and explained by means of a chart a graphic method of representing the duration of the song-periods, and also the periods of migration, of the birds of Westchester County, New York, based on a long series of observations. The President called attention to the advantages this method obviously possessed for delineating the seasonal presence of species successively at different localities; and Dr. Merriam spoke of its ap-

* In this connection attention may be called to a paragraph under the head of 'Notes and News' in the present number of 'The Auk,' showing that the Committee has promptly and earnestly entered upon its work.

plicability on a large scale for the tabulation of data on bird migration.

Mr. G. B. Sennett explained his system of a card catalogue for ornithological collections, which led to remarks by Messrs. Allen, Brewster, and Merriam on the advantages of the card system in general, and its convenience for recording field notes and other observations, resulting in an interesting discussion of such practical matters as the preservation and arrangement, not only of miscellaneous notes, but of clippings and pamphlets.

Mr. L. S. Foster, superintendent of the District of Spanish America under the Committee on Bird Migration, gave some interesting statistics respecting the destruction of birds by striking against the lighthouse at Cape San Antonio, Cuba.

Mr. Brewster gave an account of his recent visit to Point Lepreaux, on the west shore of the Bay of Fundy, including very detailed observations of the manner in which birds strike the light-towers, the influences governing their movements at night, and of the way in which certain species start on their day-journeys to distant points. He also gave a very interesting account of his recent ornithological explorations in the mountains of North Carolina.*

Col. N. S. Goss presented a paper† on recent additions to the bird fauna of Kansas.

In the way of miscellaneous business an amendment was proposed, to be acted upon at the next meeting, affecting the method of election to Active membership. Resolutions of thanks were passed to Senator Warner Miller, and to Prof. Spencer F. Baird, for their efforts in securing from Congress an appropriation of $5000, for the prosecution of investigations in Economic Ornithology; to Mr. George B. Sennett for his interesting stereopticon exhibitions of colored slides of birds (formerly the property of Mr. R. Bowdler Sharpe, of the British Museum), painted by the celebrated artist Keulemans, which he had given at the close of each day's session; and to the Trustees of the American Museum of Natural History for their kindness in placing rooms at the disposal of the Union for its meetings, and for their cordial invitation to accept similar hospitality next year.

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* This paper will be given in 'The Auk,' the first part appearing in the present number, pp. 94-112.

† Given in abstract in the present number of 'The Auk,' pp. 112-115.

In accordance with a recently adopted amendment to the Constitution, respecting the offices of Secretary and Treasurer, it became necessary to elect a new Treasurer. The election for officers resulted in the choice of Mr. Charles B. Cory, for Treasurer, and the re-election of the previous incumbents.

After a very satisfactory two days' session, the Union adjourned to meet in Washington, the third Tuesday in November, 1886. The only regret seemed to be that the session was not allowed to occupy another day, a regret especially shared by members who had made a long journey to attend the meeting. A pleasant feature of the occasion was the presence of a number of Associate Members, and their active participation in the proceedings of the Congress. As less time will be necessary in future than heretofore for routine business and reports of Committees, future meetings will doubtless be devoted more largely to scientific papers, the presentation and discussion of which, it is already evident, will form an attractive feature of these annual gatherings of the American Ornithologists' Union.

RECENT LITERATURE.

Murdoch on the Birds of Point Barrow, Alaska.—Of the 'Report of the International Polar Expedition to Point Barrow, Alaska,'* recently published by order of Congress, the report on the 'Natural History,' by Mr. John Murdoch, occupies upwards of one hundred pages, of which twenty-three (pp. 105–128) are devoted to birds. Of the 54 species noted, 42 are water birds. With few exceptions, all were collected "within a circle of fifteen miles from the station at Point Barrow." There is, however, a supplemental list (p. 200) of 18 species "noticed at Plover Bay, Eastern Siberia, August 21 to 25, 1881." The period of observation at Point Barrow covered very nearly two full years. Considering that the locality is at the northern extremity of this continent, in latitude 71° 16′ north, and far remote from any other where continuous observations have been made for any consid-

* Report of the International Polar Expedition to Point Barrow, Alaska, in response to the Resolution of the House of Representatives of December 11, 1884. Washington: Government Printing Office, 1885. 4to, pp. 695, map, and numerous plates, mostly unnumbered. Part IV, Natural History. By John Murdoch, A. M., Sergeant Signal Corps, U. S. Army. Pp. 89–200.

erable period, Mr. Murdoch's report on the ornithology is necessarily one of high importance, through the light it throws upon the distribution of birds in the 'High North.' The report consists almost wholly of field notes, ranging, with different species, from a few lines to a page or two. Detailed descriptions, however, are given of the adult and immature plumages of the rare *Rhodostethia rosea* (Ross's Gull), and also two colored plates, illustrating respectively the adult male in winter plumage, and a young female in the first autumnal plumage. The expedition "succeeded in obtaining a large series of this rare and beautiful bird—more, in fact, than there were before in all the museums of the world—and a still larger series might have been obtained had the weather and other conditions been favorable. . . . In 1881, from September 28 to October 22, there were days when they were exceedingly abundant in small flocks—generally moving towards the northeast—either flying over the sea or making short excursions inshore. Not a single one was seen during the spring migrations or in the summer, but two or three stragglers were noticed early in September—a few out among the loose pack-ice—and on September 21, 1882, they were again abundant, apparently almost all young birds. They appeared in large, loose flocks, coming in from the sea and from the southwest, all apparently traveling to the northeast. Most of the flocks whirled in at the mouth of our lagoon and circled round the stations with a peculiarly graceful, wavering flight, and many were shot close to the house. A cold easterly wind was blowing at the time. They continued plenty for several days—while the east wind blew—all following the same track, moving up the shore, and making short excursions inland at each of the beach lagoons. After September 28 they disappeared until October 6, when for several days there was a large flight. On October 9, in particular, there was a continuous stream of them all day long moving up the shore a short distance from the beach, and occasionally swinging in over the land. *None were seen to return*" (pp. 123, 124). The birds are simply autumn visitors to Point Barrow, which is the only locality where they have been observed in abundance.

The King Eider (*Somateria spectabilis*) is said to be "the most abundant bird at Point Barrow," and quite a long and detailed account is given of its habits. The Pectoral Sandpiper (*Tringa maculata*) was also found to be a very abundant species, and we have here the first account of its eggs and breeding habits. "The nest is always built in the grass, with a decided preference for high and dry localities like the banks of gullies and streams. It was sometimes placed at the edge of a small pool, but always in grass and in a dry place, never in the black clay and moss, like the Plover and Buff-breasted Sandpipers, or in the marsh, like the Phalaropes. The nest was like that of the other waders, a depression in the ground lined with a little grass." The complete sets of eggs found always contained four, of the usual pointedly pyriform shape of those of other Sandpipers. Eighteen sets were examined. In color the eggs greatly resemble those of the Buff-breasted Sandpiper.

Very full and interesting notes are given respecting many other species,

but lack of space forbids a more extended notice of this important contribution, which is only one of a series of highly valuable reports by the same author upon the animals and plants obtained in the vicinity of Point Barrow. The Commander of the Expedition, P. H. Ray, First Lieutenant Eight U. S. Infantry, especially acknowledges the able and valuable assistance rendered by Mr. Murdoch throughout this eminently successful expedition.—J. A. A.

The 'Water Birds of North America'—A Few Corrections.—The excellent and exhaustive work on the 'Water Birds of North America,' lately issued by the Agassiz Museum of Comparative Zoölogy, is a model treatise as far as the labors of the authors whose names appear on the title-page could make it perfect; and for errors in quotations from others, chiefly compiled by the late Dr. Brewer, neither he, Professor Baird, nor Mr. Ridgway can be held responsible.

It is, however, an unfortunate circumstance that while so many are indirectly made contributors, they should have been unable to amend their notes when printed, as there is always new information accumulating, which more or less alters previous knowledge, especially in regard to habits of birds. It was probably impracticable to supply proof-sheets to all the naturalists quoted and still living while the printing was being done. In consequence, a large number of amendments and additions must remain for publication in other ways, the editors not having seen fit to add an appendix, as done with the three volumes of 'Land Birds.' The following corrections will be of interest, and relate chiefly to quotations from my own writings. I do not now undertake to give many additional observations.

In volume I, page 75, line 2, '*tule*' should be printed *tulé*, it being the Spanish or Mexican name of the giant rush, *Scirpus lacustris*,—not properly speaking a "long grass." In Utah it is spelled Tooele, the lake thus named being within the range of Spanish travel, but should be pronounced Too-ly, in two syllables.

Page 115, line 3, for 'sport' read spout.

Page 116, line 10. *H. niger* breeds as far south as Santa Barbara Island. See quotation on next page, line 8.

Page 117, line 22 from bottom, for 'Malashka' read Unalaska.

Page 146, line 19 from bottom, for 'California' read Caledonia.

Page 233, near middle, Dr. Brewer overlooked my article in Proc. Cal. Acad. Nat. Sc., IV, 3, 1868, where I stated this species to be "not rare at San Francisco Bay in winter." The same article would have furnished other facts on 45 species of birds, chiefly additional to what he did quote.

Page 298, line 12, for 'western,' read eastern.

Page 320, line 6. The young birds I caught were probably *Limosa fedoa* (p. 255), which are described as very similar to the young of *Numenius* when not half grown. It is my recollection, however, that old Curlews were shot also, possibly barren birds. On p. 312 he also quotes my notice of *N. longirostris* in the same locality, but no other collector has found it breeding there.

Page 358, line 18. My notes are not correctly quoted. The bird was hid in a hole or cave in the rock, and when alarmed flew out alighting on San Francisco Bay.

Volume II, page 7, *Nettion crecca*. Also found not rarely in California. I gave it in the 'Additions,' etc., in Proc. Cal. Acad. Nat. Sci. 1868.

Page 37. The Ducks shot by Dr. Heermann in summer in California, were more probably females of some other kind than of *Mareca americana*, as the latter has not been found breeding in the United States.

Page 38, line 5 from bottom, for 'Kansas' read Texas.

Page 39, line 10 from bottom, for '1.35' read 2.35.

Page 51, near middle and elsewhere, for 'Conalitos' read Corralitos.

Page 87, line 21, for 'west' read coast.

Page 118, line 2, for 'smaller' read summer.

Page 143. The Brown Pelican of the West Coast was fully described by me as a common summer bird as far north as Shoalwater Bay, Lat. 47°, in P. R. R. Rep't, XII, iii, 1859, but San Francisco is given here as the northern limit, Dr. Brewer not quoting the Report, as in several instances. The adult plumage obtained by me at San Diego does not differ from that of Florida birds, but the colors of bill, pouch, etc. differed from both the Florida and Lower California birds, being intermediate, and quite variable.

Page 147 The notes on *Phalacrocorax carbo* do not agree with the distribution given on p. 145. Nuttall gives it as a bird of the Northwest Coast.

Page 288. In my 'Additions to the Fauna of California' in 1868, not quoted. I mentioned *Sterna elegans* as obtained in San Francisco Bay.

Page 336. I published a notice of the occurrence of this bird in San Francisco Bay (Proc. Cal. Acad. Sc. V, 415, 1875).

Page 365, line 8, for 'gong' read gony. In line 12 is a misquotation, apparently contradicting the previous part of the sentence. The birds seen by me were near shore.

Page 371, line 6 from bottom, for 'Tagers' read Yagers (from the German Jäger, a hunter).

Page 390. A blackish species, agreeing closely with *P. stricklandi*, is found on the California coast in company with *P. creatopus*, and I supposed it to be the same bird in young plumage, just as the former is supposed by some to be the younger *P. major*. The only one I obtained was not sent to Washington, therefore is not referred to, and I saw no reason to consider it new. The wing was 12¼ inches long (not 12), thus a little larger than in *stricklandi*, just as that of *creatopus* was ¼ inch longer than in *major*. The four named species should probably be reduced to one, and many similar combinations of species would be advantageous to the study of the water-birds.

Page 411. Mr. W. O. Emerson, of Haywards, obtained specimens this year at the Farallone Islands, California, of the size of *C. homochroa*, but in plumage approaching *C. melania*.

Page 424, line 18 from bottom, for 'Pueblo' read Pablo.

Page 428. A perfect albino, apparently of *C. holbœlli*, was received from the Alaskan coast by Mr. Gruber of San Francisco, about 1874.

Page 448, line 13, for 'file' read pile (that is, arrow).

Page 486. I published the occurrence of the *U. lomvia* (*arra*) in San Francisco Bay, in the Proc. Cal. Acad. Sc. V, 414, 1875.

Page 502. Although the authors quote me in regard to color of bill, they have omitted my notes on finding *B. hypoleucus* breeding on Santa Barbara Island in 1863, where its habits, as far as observed, were similar to those of *P. aleuticus*, quoted on p. 519.

Page 519, line 20 from bottom, for 'dying' read rising.—J. G. Cooper.

Stejneger's Ornithological Explorations in Kamtschatka.—Among the more important ornithological works of the year 1885, Dr. Stejneger's 'Explorations in Kamtschatka'* easily takes a very high rank, and, as regards North American publications on this subject, marks an altogether 'new departure,' it being the first work in which the classification and nomenclature of the (still unpublished) A. O. U. 'Check-List' is systematically recognized. On this point the author says: "The systematical nomenclature will be found to deviate not inconsiderably from the one usually adopted in the publications treating of the region in question. The reason is a two-fold one, for in *identifying* the birds I have been anxious not to lump together nearly-related forms, representative species, subspecies, local races, migrating-route races, or whichever they are termed, giving the separation the benefit of the doubt whenever there be a doubt, it being my scientific creed that this is the least harmful course. In *naming* the forms thus identified I have strictly adhered to the rules laid down by the 'American Ornithologists' Union.' For changes in nomenclature of that origin I am, therefore, only partly responsible, and eventual critics should not charge against me 'the pleasure of bringing forward' these changes, which are the necessary results of the consistent application of the only sound principle upon which a scientific nomenclature can be based. The systematical arrangement is that which I proposed in 'Science Record,' 1884, p. 155, with a few modifications" (p. 7).

From this avowal of principles and methods the reader is prepared for innovations, both in respect to nomenclature and the status of species and subspecies. Since many ornithologists are disposed to avow the antithesis of Dr. Stejneger's 'creed' in respect to the separation of closely allied forms, and to let the doubt weigh in favor of non-separation—both sides are obviously susceptible of argument—probably the ground here taken is too radical to meet with general approval. The work before us displays, however, a thoroughness of research, a critical sifting of records and diagnoses, and detailed exactness of statement that stamps it as in

* Results of Ornithological Explorations in the Commander Islands and Kamtschatka. By Leonhard Stejneger. With nine plates. Washington: Government Printing Office, 1885.=Bulletin No. 29 of the United States National Museum. Published under the direction of the Smithsonian Institution. 8vo., pp. 382, pll. 8 and map, and 7 cuts in text.

many ways as a model monograph of its kind, and cannot fail to receive much hearty commendation, as well as, doubtless, some adverse criticism. Independence and originality, as well as thoroughness, are its marked features.

The work is divided into three parts. Part I is devoted to a review of the species of birds collected or observed by the author on the Commander Islands and at Petropaulski, Kamtschatka. Part II is a Synopsis of the birds hitherto reported to inhabit Kamtschatka. Part III is entitled 'Conclusions.' "The first and third parts," says the author, "are eminently the 'results of my explorations,' while the second part is more the 'result of my investigations,'" and is the first attempt at a "a complete list of the birds known to have been observed in Kamtschatka."

In Part I, occupying pages 11–310, 140 species are treated. Of each is given an extended table of bibliographical references, in the main relating especially to the region in question; full field notes follow, with tables giving lists of the specimens obtained, their measurements, and notes on the color of the bill, feet, iris, and soft parts taken from the freshly killed bird, contents of stomach, etc. Many questions of synonymy are discussed in detail, with frequently contrasted diagnoses of closely allied forms. The careful notes on the changes of plumage with age and season, and the shedding and renewal of the moulted parts of the bill in the various species of the Alcidæ, are especially important, notably supplementing and correcting previous observations on this subject, to which most of the illustrations in the text and five of the plates (all finely executed, and four of them beautifully colored) are devoted. Careful descriptions and colored figures from life are also given of the heads of several of the Petrels, Gulls, Geese, and Cormorants. Several pages are also devoted to the changes of plumage in the Ptarmigans.

As already said, the classification is practically the same as that adopted for the A. O. U. Check-List, but it differs from it in some particulars, as in the adoption of 'superfamilies' in place of suborders, and the consequent employment of different names for practically identical groups. Thus the order of Loons and Grebes is termed Cercomorphæ instead of Pygopodes.

A new genus, *Charitonetta*, is established for the Buffle-head Duck; *Cuculus peninsulæ* is a new Cuckoo from the Commander Islands; the American form of *Aythya affinis* is separated from the Old World form, the latter being designated *A. affinis mariloides* (Vig.); and *A. marila* is similarly divided, the American form receiving the name *A. marila nearctica* Stejn. The American and Old World Goosanders are separated specifically. The American Bank Swallow is distinguished from the Old World form under the name *Clivicola riparia cinerea* (Vieill.). The American Barn Swallow is compared at length with its Old World allies, with the result of maintaining its specific distinctness. The Kamtschatkan and Alaskan *Budytes* is separated from *B. flavus*, under the varietal name *leucostriatus* of Homeyer. It is also suggested that the examination of further material will show the propriety of recognizing a

Phyllopseustes borealis kennicotti, the two cases of *Budytes flava* and *P. borealis* being, in our author's opinion, "absolutely parallel." In considering these species Dr. Stejneger emphatically reiterates his creed, and says, under the head of *Budytes* (p. 183), "We have here before us a plain case demonstrating the necessity of recognizing [in nomenclature] the finest differences between related forms if the aim of collecting specimens and studying them is to find out the laws ruling the living nature. If the ornithological system and the ornithological science has for object only the convenience of the museum director in determining the names to be put on the label, then it may be proper and convenient to ignore the finer characters, and throw different forms into the same pot, because it is difficult to trace a sharp line between them, or because there are individuals which the perplexed director does not know how to enter upon the register. But it is time that such an ornithology should be done away with. The birds are not there for the sake of the museums, but the museums for the birds." When it becomes unsafe "to refer a specimen to one or the other form without having a series of both forms at hand, or without knowing the locality," there may be still "enough difference to warrant their subspecific separation"; but the utility of so doing seems open to question. We recognize, as strongly as any one, the importance of tracing out and noting these finer differences, but when the distinctions are so fine, though readily appreciable when the proper amount and kind of material is before one, that descriptions however minute and detailed fail to afford the means of recognizing such forms, and actual comparison of a specimen with a series representing the forms that may be in question, and a knowledge of the exact locality is also requisite to render the determination satisfactory, we submit that a degree of hair-splitting is reached which renders the recognition of such forms in systematic nomenclature a matter of highly doubtful propriety. The recognition of such forms becomes dependent not merely upon expert knowledge and tact in discrimination, but upon the possession of material few museums are able to acquire, and, generally speaking, quite beyond the resources of the private cabinet, and the efficiency of the most detailed technical descriptions. While such discriminations are of the highest importance in any consideration of the relations of animals to their environment, and the action of environment upon the evolution or modification of the forms of life, and should be most minutely noted, the recognition of such distinctions in nomenclature may readily be carried beyond the point of practical utility, since only the exceptionally favored few having access to the necessary material will be able to recognize such finely drawn lines, which serve only to mystify and embarrass the average student.

Part II of Dr. Stejneger's work (pp. 313-325) gives a list of 186 species of birds which are considered as authentically reported to inhabit Kamtschatka, while a number of others are referred to as having been attributed to Kamtschatka, but whose occurrence there requires confirmation. An Appendix to Part II (pp. 329-331) is mainly a critical commentary on recent papers on this subject by Dybowski and Taczanowski.

Part III. 'Conclusions' (pp. 333-358), relates mainly to a discussion of the component elements of the ornis of Kamtschatka and, incidentally, of the Commander Islands, and consists of a series of 'Tables' (numbered I to XX), showing the faunal relations of the various Kamtschatkan species, genera, etc., with explanatory and analytical text. The bird fauna of the Commander Islands is essentially Kamtschatkan, only eleven species occurring there which are either American or peculiar to the Islands. Of the Kamtschatkan species 22.3 per cent are 'Circumpolar,' 21.1 per cent are 'Palæarctic,' 16 per cent are 'Pacific,' 4.6 per cent are 'American,' 5.1 per cent 'Siberian,' and 30.9 per cent 'East Asiatic or peculiar.' The peculiarities of distribution displayed by certain species is the subject of much interesting comment.

The work closes with a sketch map of the region under consideration, a list of illustrations, and a very carefully prepared index.—J. A. A.

Torrey's 'Birds in the Bush.'*—Under this characteristic title, Mr. Torrey has presented the public with a collection of his field studies in bird life, most of them previously published in the 'Atlantic' or other literary magazines. The author is thoroughly in sympathy with the feathered denizens of field and wood,—a bird-lover of the ardent sort. His pages show that he is even more than this—a keen, discriminating field naturalist, able to correctly identify his birds—to a fair degree an ornithologist, with much book-knowledge of birds, as well as more than a speaking acquaintance with the birds themselves. He not only sees well, and listens well, but is able to tell felicitously what he has seen and heard. While the ornithologist will find in these pages much that is not new to him he will be interested and entertained by the manner of the telling, not a little that has never been so well told before, and not unfrequently features of bird-life delineated that have not before found their way into print. In short, the book is a delightful series of field studies, intermixed with a little moralizing from the bird point of view, seldom monotonous, and never wearisome,—a book which not only bird-lovers, but most ornithologists will find entertaining and instructive. An indication of the character of the contents may be derived from the following list of the titles of the Chapters: 'On Boston Common'; 'Bird-Songs'; 'Character in Feathers'; 'In the White Mountains'; 'Phillida and Coridon'; 'Scraping Acquaintance'; 'Minor Songsters'; 'Winter Birds about Boston'; 'A Bird-Lover's April'; 'An Owl's Head Holiday'; 'A Month's Music.'—J. A. A.

Holder's Catalogue of the Birds of Lynn, Mass.—Dr. Holder's original Catalogue† was published in December, 1846, as 'Number I' of the 'Publications of the Lynn Natural History Society,' and is therefore one of the earliest of the 'local lists.' It has been long out of print, and practically

* Birds in the Bush. By Bradford Torrey. Boston: Houghton, Mifflin and Company, 1885. 12 mo., pp. 300.

† Catalogue of the Birds noticed in the vicinity of Lynn, Mass., during the years 1844-'5-'6. By J. B. Holder. 8vo., pp. 8. No date. [Nov., 1885.]

inaccessible. It is a nominal list of 185 species; and its chief interest now is that of a 'pioneer' list. In its present form it is very nearly a literal reprint of the original (we are informed that a few typographical errors have been corrected). It can be had, we are desired to state, free of cost on application to the author, whose address is 'American Museum of Natural History, New York City.'—J. A. A.

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GENERAL NOTES.

The Bridled Tern (*Sterna anæthetus*) **in South Carolina.**— Mr. Walter Hoxie has sent me a specimen of this species shot August 25, 1885 (immediately after a hurricane), at Frogmore, South Carolina. It is a young male in fresh and very perfect autumnal plumage. The occurrence of this species in the United States has been previously open to some doubt, although Mr. George N. Lawrence has a specimen (formerly in the Audubon collection) which is labelled as having been taken in Florida.— William Brewster. *Cambridge, Mass.*

The Wild Swan in Prince Edward Island.— For several days previous to the 7th of October Mr. Wm. Stead, of Wheatly River, Prince Edward Island, observed a large bird in company with his flock of Geese. After making several unsuccessful attempts at capturing the stranger, he finally shot it. It proved to be an American Wild Swan, measuring 6 feet 6 inches in extent, and 4 feet 9 inches from tip of bill to toe.

This is the first recorded instance of the capture of a Wild Swan in Prince Edward Island, and shows how rarely these birds, though breeding in the Far North of Hudson's Bay, visit in their migrations the extreme east of the Continent.— F. Bain. *North River, Prince Edward Island.*

Sandpipers at Sea.— On May 6 of this year, I was a passenger on the steamer 'St. Laurent,' which sailed from New York at 10 A. M., with a light east wind and clear weather. May 7 and 8 the wind held east,

gradually increasing to a fair breeze. Yet not at any time was there more than a fair summer breeze, though the gradual increase of the old swell running from the east told us of a storm not far ahead. We did not catch the storm, but learned, on reaching port, that steamers a few hours in advance had found rough weather. Both days were more or less foggy, the steam horn blowing on and off about half the time.

The fastest run up to 12 M. on May 8 was 582 miles. I regret that I am now unable to give exact position, but as we took a slightly more southerly course than is usual with the French line, it can easily be approximated.

On May 8, at 2 P. M., while watching some Petrels, I noticed a flock of Peeps on the port side, flying towards the steamer from the northwest. When within about 80 yards of us they turned to the east till they could pass our bows, then turned sharply, passing within a few yards, or even feet of us, and then off to the S. E. by E. I at once went to the upper deck to watch for more, and was surprised to find that, in every direction, as far as I could see in the then light fog, were large flocks of Peeps all flying in the same direction, S. E. by E. The birds were flying in large scattered flocks of from fifty to apparently several hundred birds. The flight lasted for nearly three hours, during which a very large number of birds must have passed us.

Why were they flying S. E. by E.? They should at that season have been bound for their northern breeding grounds and not for Africa.

There was not any evidence tending to show that the birds were lost, as all flew exactly the same way. Every flock that found our vessel in their line of flight, and of which there were not less than fifty, turned to the east till they could make by our bow, not one flock, or even a single bird, did I see turn to the westward to cross astearn of us.

They were flying strong, easily passing our steamer, then making 12½ knots. Not one tried to alight, nor did any fall into the water, nor were any seen floating, though I watched carefully.

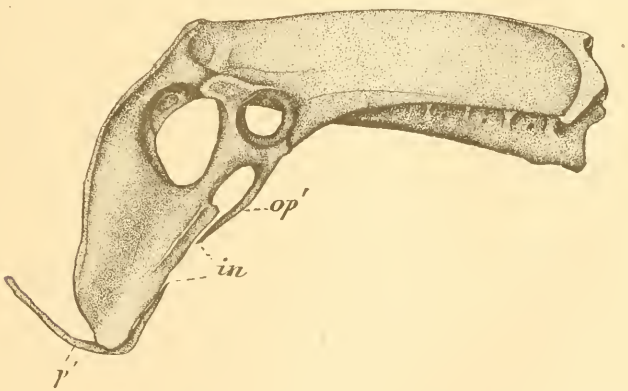
Whether the Peeps were *Tringa minutilla* or *Ereunetes pusillus* I can not say, but surely they were out of place and fast getting more so.— W. A. JEFFRIES, *Boston, Mass.*

On the Proper Name for the Prairie Hen.— Probably all ornithologists who have had the opportunity of investigating the matter, or who have carefully read Mr. Brewster's important article on 'The Heath Hen of Massachusetts' in 'The Auk' for January, 1885 (pp. 80-84), fully agree with Mr. Brewster in regard to the necessity of recognizing two species of the genus *Tympanuchus* (formerly *Cupidonia*), and indorse his restriction of the specific name *cupido* to the eastern bird. No other view of the case, in fact, seems admissible. In giving a new name to the western bird, however, Mr. Brewster has unfortunately overlooked a supposed synonym of *T. cupido*, which applies exclusively to the western species, as I have very recently discovered in compiling and verifying references pertaining to the two birds. The supposed synonym in ques-

tion is that of *Cupidonia americana* Reich. Syst. Av. 1850, p. xxix, based on figures 1896-98 of his 'Icones Avium' (Vollständ. Naturg. Huhnerv. Aves Gallinaceæ). The two smaller of these three figures unquestionably represent the western Prairie Hen: the other, and principal figure, is a reduced copy from Wilson (American Ornithology, pl. 27, fig. 1), which, that author tells us, is "A figure of the male . . . . as large as life, drawn with great care from the most perfect of several elegant specimens shot in the *Barrens of Kentucky*." (Italics my own.)

It is thus plain that the western Pinnated Grouse, or Prairie Hen, must be called *Tympanuchus americanus* (Reich.).— ROBERT RIDGWAY. *Washington, D. C.*

On the Free Post-pubis in certain of the Falconidæ.—Being engaged upon the osteology of the North American Falconidæ, and at present not very fortunately situated so far as the literature of my subject is concerned, I would like to ask some one of the many readers of 'The Auk,' to whom the larger anatomical works are more accessible, and who may be, at the same time, interested in the structure of birds, for the authority I must refer to, if, indeed, it has ever been described, for an account of the peculiar condition in which we find the post-pubic element of certain Hawks.



Right lateral view of the pelvis of *Buteo borealis calurus*, showing the free hinder portion of the post-pubic element (*p'*); *in*, the interval which occurs between it and the obturator portion (*op'*). Life size from the specimen.

As an example, we meet with the peculiarity in question, well displayed in the pelvis of the common Marsh Harrier, where we observe the hinder two-thirds of the post-pubis to be a separate piece of bone held in its usual position, as found in birds, by being freely suspended to the lower margin of the ischium by ligament. Between this free portion of the element, and that part which closes in the obturator foramen, quite an inter-

val exists. This latter is spanned over in the living bird by a delicate band of fibrous tissue. In the genus *Buteo* a similar state of affairs obtains, and I present above a drawing of the pelvis of a specimen of *B. borealis calurus*, offering an aspect from which the point I refer to, may be seen. This figure happens to be taken from a skeleton of this bird, which I have recently forwarded to the Museum of the University of Edinburgh. Some of the representatives of the genus *Falco* have the post-pubis all in one piece, as we find it in the vast majority of the class, though a thinning of its middle portion may usually be detected.

In the figure of a skeleton of an Eagle presented by Mr. F. Jeffrey Bell (after Milne-Edwards), in his 'Comparative Anatomy and Physiology,' only that portion of the post-pubis is shown which closes the obturator foramen. This is equally true of Sir Richard Owen's figure of the pelvis of one of these birds in his 'Anatomy of Vertebrates' (Vol. II, p. 33, fig. 23).

Quite often it happens that the obturator foramen is closed in by the ligamentous band which connects the free extremity of this anterior portion of the post-pubic element (*op'*) with the ischium. Indeed, the last named author alludes to this, and says that "the shortest pubis is seen in certain Eagles, in which it terminates after forming the lower boundary of the obturator foramen; its extremity there projecting freely, as in fig. 23, *d*, or being joined by ligament to the ischium, as in the Harpy Eagle, in which it is an inch in length, whilst the ilium is six inches long" (*op. cit.*, p. 36).

Unfortunately, I happen not to have the skeleton of an Eagle at hand, but it seems to me, in view of the fact that the genera of Buzzards and Eagles are quite closely affined, the latter birds should possess this free portion of the post-pubic element of the pelvis also. As it is often detached during maceration, it is quite possible that in the course of the preparation of the specimens from which M. Milne-Edwards and Sir Richard Owen's figures were taken, it may have been lost.

As Eagles are quite common in this vicinity, I hope to be able to decide this point, on some future occasion, by dissection of a fresh specimen.—R. W. Shufeldt. *Fort Wingate, New Mexico*, 8th Nov. 1885.

Capture of the Scissor-tailed Flycatcher (*Milvulus forficatus*) on the Southeast Coast of Florida.—On the 2d of March, 1885, I shot one of these birds, a male, at Cape Sable—the only one noticed. I think its occurrence so far east worthy of note.—N. S. Goss. *Topeka, Kansas.*

The Scissor-tailed Flycatcher (*Milvulus forficatus*) at Key West.—In a collection of alcoholic specimens of birds made at Key West, Florida, January 15, 1885, by the naturalists of the U. S. Fish Commission Steamer 'Albatross' is a specimen of this species (U. S. Nat. Mus. No. 102,444). The record should have been made before this, but I had quite forgotten the matter until reminded of it by the above note by Col Goss.—Robert Ridgway. *Washington, D. C.*

The Baltimore Oriole in Massachusetts in November.—On Nov. 15, 1885, I shot a male Baltimore Oriole (*Icterus galbula*), in perfect plumage and condition, while feeding upon frozen apples in an orchard. I send this account of the late appearance of this bird, which usually leaves us in September, thinking that it may be worthy of record in 'The Auk.'—Chas. E. Ingalls. *East Templeton, Mass.*

Icterus galbula in Connecticut in November.—A young male was shot in my dooryard Nov. 15, 1885. It was in good condition and showed no signs of ever having been caged. It was seen about my grounds several days previous to the above date.—Jno. H. Sage. *Portland, Conn.*

The Vernacular Name of Plectrophenax hyperboreus.—The specific name of this species was chosen in consequence of the supposition, recently proven to be erroneous, that "the summer home . . . . is probably the unknown region to the north of the Arctic mainland, since, at the extreme northern point of Alaska [Point Barrow] only the true *P. nivalis* breeds." The American Ornithologists' Union Committee on Classification and Nomenclature decided upon 'Polar Snowflake' as a more suitable vernacular name for the species than that of McKay's Snow Bunting, originally bestowed upon it; but since we now have positive evidence (the nature of which I am not at present at liberty to explain) that its breeding habitat is not polar, and is in fact considerably south of the Arctic Ocean. I would suggest that the species be called McKay's Snowflake, "in memory of Mr. Charles L. McKay, who sacrificed his life in the prosecution of natural history investigations in Alaska, and in whose collections the new species was first noticed." (*Cf.* Proc. U. S. Nat. Mus., Vol. VII, pp. 68-70.)—Robert Ridgway. *Washington, D. C.*

Ipswich Sparrow in Texas.—I have in my collection an adult male *Ammodramus princeps* taken at Dallas, Texas, Dec. 10, 1884. I obtained it from Mr. Fred. T. Jencks of Providence, who writes me in regard to it as follows: "The Ipswich Sparrow was purchased from the collector, Mr. Clothrie Pierce, for a Western Grass Finch, and it was so labelled until the day I picked out your series of Sparrows, when I detected its true identity." This largely extends the habitat of this comparatively new species, heretofore only recognized on the sand hills of the Atlantic Coast.—Geo. B. Sennett. *American Museum of Natural History, New York.*

Occurrence of the Ipswich Sparrow (*Ammodramus princeps*) in Nova Scotia.—A short time ago I forwarded to Mr. Montague Chamberlain of St. John, N. B., a Sparrow for identification, and he has kindly returned it with the intimation that it is an example of the Ipswich Sparrow (*Ammodramus princeps*), a bird which has never before been included in our fauna. I shot the specimen while after Ducks on the Coast at Lawrencetown, near Halifax, about the end of March, 1878, as it was feeding on

seeds among the bent grass near the shore. Mr. Chamberlain informs me that its only known breeding place is Sable Island, which is but 80 miles out at sea from our coast; it may therefore breed on some part of our eastern seaboard between Cape Sable and Cape Breton. Not being aware of the rarity of the species, I did not search for more at the time, but I am almost positive that I have seen other specimens since. However, I hope next spring to be able to prove that it is not so rare a bird, at least in this Province, as it is supposed to be.—T. Matthew Jones, *Halifax, N. S.*

The Lark Finch in New Jersey.—On November 26, 1885, while collecting at Schraalinburgh, N. J., within about six miles of the New York State line, I captured a female Lark Finch (*Chondestes grammacus*). It was in excellent condition, the moult just completed. The appearance of this bird, so far from its natural habitat, was without doubt caused by the severe storm of November 21-24, which, arising in Western Kansas and traveling at an average speed of forty miles an hour, in at first a south easterly, and then northeasterly direction, became, November 24, central on the New Jersey coast near Atlantic City.—Frank M. Chapman, *Englewood, N. J.*

The Winter Distribution of the Swamp Sparrow and the Yellow-rump.—On pages 380 and 381 of the last volume of 'The Auk,' Mr. Arthur P. Chadbourne has something further to say with respect to the wintering of Swamp Sparrows in Massachusetts and of Yellow-rumps in Maine, during the season of 1884-85. Mr. Chadbourne intimates that he is willing to have the question made one of evidence, and repeats with some changes of phraseology the information he has previously (Auk, Vol. II, p. 216) brought forward on the subject of the Sparrows, without, however, the addition of any new facts. This information is in brief as follows: Four Swamp Sparrows were seen by a collector in Cambridge on December 29, 1884, and one of them was shot and preserved; *the remains* of another —perhaps one of the original four—were found, not far from the same spot, on January 31, 1885. Upon such ground is based the conclusion that Swamp Sparrows tarried in the vicinity throughout the winter.—a conclusion which is plainly not justified in the light of the facts, that the season was exceptionally severe after the middle of January and exceptionally mild before that date, and that this species has never been shown to remain in Massachusetts throughout any winter season. The claim that in Massachusetts January is a test month for irregular winter residents cannot be made in behalf of the Swamp Sparrow, for the very reason that the bird has as yet no right to a place in that class. To assert that it never will have such a right, is far from my intention. Not much evidence is needed to prove that it can brave the rigors of an entire winter season in Massachusetts; but until the missing links in the chain are produced, no good strict constructionist will admit, I think, that the Swamp Sparrow has been found 'wintering' in that State. Mr. Chadbourne's cita-

tions of instances wherein certain other kinds have passed the winter far to the north of their usual habitats are simply irrelevant, and his references to what may be possible are entirely outside the range of evidence.

But when Mr. Chadbourne comes to speak of Yellow-rumps, he is, to say the least, forgetful of the laws which regulate the geographical distribution of birds. He believes it "almost equally certain that the Yellow-rumped Warblers were wintering at Pine Point, Maine," because "they do regularly at Milton, Mass., only about ninety miles south," and because they winter also at other points in Massachusetts. He gives no other reasons. It is hardly necessary to discuss the cogency of those which he does produce: they are not in the nature of evidence.—NATHAN CLIFFORD BROWN, *Portland, Maine.*

On the Former Breeding of Psaltriparus minimus in South Carolina.—In a letter received sometime since from Dr. C. Kollock, mention was made of the former breeding of the Least Bush-tit in the vicinity of Cheraw, South Carolina. Subsequently I wrote to him asking for further particulars concerning this interesting occurrence. His reply is as follows:—"As to the Chestnut-crowned Titmouse—*Parus minimus* of Townsend and Audubon—I never wrote anything on the subject except a short letter to the Rev. Dr. M. A. Curtis, who was then pastor of the Episcopal Church at Society Hill, about fifteen miles below Cheraw. When I first wrote him that I had found specimens of the Chestnut-crowned Titmouse near Cheraw, he wrote me promptly, saying that I must be mistaken, as that bird was never seen east of the Rocky Mountains. I had captured both the male and female, and the nest with six eggs in it. A few days later Dr. Curtis came to Cheraw, and when he saw the birds, nest, and eggs, he gave it up and said, 'You have discovered the first Chestnut-crowned Titmouse ever seen this side of the Rocky Mountains.' I saw perhaps six or eight others in the same locality. I have never seen any since that date, [the spring of] 1857, so it must have been an accident their appearing in this latitude."

This account adds still another instance of that peculiar easterly migration of 'western' species toward the South Atlantic seaboard, which has so recently been revealed in the records of Le Conte's Bunting, Painted Longspur, Nelson's Sharp-tailed Finch, and Yellow-headed Blackbird.

It is to be hoped that the constantly increasing band of ornithological workers, scattered over the State, will be able to throw the clearer light of later experience on this and other legacies of the Bachmanian epoch of South Carolinian ornithology.

P. S.—Since writing the foregoing I have received a more detailed account from Dr. Kollock respecting the occurrence noted above, from which I add the following:

". . . . The nest was suspended from low bushes, from three and a half to five feet from the ground; was in the shape of a long purse, from four to six inches in length, with a round hole at the top. The lower part or bottom of the nest was wider than the upper part. The nest was made

principally of moss, lint, and down, and lined with feathers. There were several eggs—I do not now remember how many—four or five, I think, and were pure white. The nest was in a low place, not exactly a swamp or marsh, but a low bottom, grown up thickly with bushes of sweet-gum, hackberry, a bush known here as the spice tree. It was most beautifully and securely attached to the twigs.

"In 1857, Dr. Curtis was in the zenith of his reputation as a botanist and ornithologist. He died soon after the war. This is all I have to say on the subject of the *Parus minimus* being found in South Carolina. I had the male and female and a nest of eggs, all of which was burned in my office by Sherman's army in 1865. The birds and nest I procured in in the very early part of May or latter part of April. . . . I was not mistaken in my identification. I saw the birds before they were captured, knew they were rare in this region, having given some attention to the ornithology of this State. Having procured the specimens, I referred the matter to Dr. Curtis, who, when he saw them, admitted at once they were the *Parus minimus*, and said, 'You are the first to find this bird east of the Rocky Mountains.' Dr. Curtis doubted my correctness of identification till he saw the specimens."—Leverett M. Loomis. *Chester, S. C.*

Helminthophila celata in South Carolina.—This plain-colored little bird, discovered and described by Say in 1823, was for a long time supposed to inhabit only the West, from the Mississippi to the Pacific Ocean, as in 1858 Professor Baird gives its habitat as such. But in later years the bird has been taken all along the Atlantic coast. Audubon is one of the early writers who defines its habitat correctly. I first became acquainted with this interesting little Warbler in the fall of 1884. I secured the first specimen I had seen living on the 29th November, 1884. I was attracted to it by its peculiar little chirp. It kept in the thickest of the bushes, and was not still for a second, so I had considerable difficulty in procuring it. The bird was shot on Sullivan's Island. This island, about six miles long, and seven miles from Charleston, is a famous summer resort for the residents of Charleston. It is directly on the Atlantic Ocean, and is my favorite collecting ground for this Warbler, as well as the numberless Waders that migrate along the coast in April and May. This Warbler is a late autumnal migrant, arriving late in November, and wintering in small numbers, especially on Sullivan's Island, as nearly all my specimens were taken on that island. They were all shot from myrtle bushes, and invariably fell when shot into the water. I therefore consider this species strictly maritime when in South Carolina. The bird reminds me of the Worm-eating Warbler, it being exceedingly active, and always keeping in the thickest bushes, searching for worms and larvæ amongst the deda leaves. I have failed to find the species five miles from Charleston, away from the coast, but have taken it nine miles from Charleston on the coast. I have taken specimens in November, December, January, February, and March. The bird appears to migrate early in the spring. They love to gambol in company with the Yellow-rumped Warblers, and

different Sparrows. I have taken males in January with the crown bright orange. My first specimen, secured November 27, was a young bird of the year, and not knowing what it was, I accordingly sent it to Mr. William Brewster for identification. He identified it as the Orange-crowned Warbler, young. I had therefore no more trouble in identifying others in the same stage. I secured in all about fifteen specimens during the winter of 1884. I may here add that *Dendroica dominica* is resident in South Carolina, as I have taken specimens in every month in the year.—ARTHUR T. WAYNE, *Charleston, S. C.*

Dendroica dominica albilora obtained in Chester County, South Carolina.—May 7, 1885, I shot an example of the Yellow-throated Warbler which appeared at a glance quite different from the ordinary specimens taken in this locality. After reading up the descriptions in the books and making careful comparison with a couple of skins secured by Dr. J. M. Wheaton at Columbus, Ohio, I became satisfied that I had found the western subspecies. This has been confirmed by Mr. J. A. Allen, who says, as the result of a recent examination, "The specimen of *Dendroica* is, so far as I can see, *D. dominica albilora*, it presenting all the characters of that form."

The occurrence of so many instances in South Carolina is suggestive of lines of migration of 'western' birds hitherto unnoted; a regurgitating one from the north, in fall, *viâ* the Mississippi Valley and the region lying to the southward of the Southern Alleghanies, bending upward into South Carolina; and a diverging one from the south, in spring, along the Gulf Seaboard. The isolated autumnal record of the Lark Finch in Florida seems to afford additional and corroborative evidence. While the original planting of the parent stock of the Burrowing Owl, now existing in the western part of that State, is perhaps equally indicatory.—LEVERETT M. LOOMIS, *Chester, S. C.*

Additions to the Avi-fauna of Texas.—Mr. George H. Ragsdale writes me that he has taken in Cook Co., Texas, *Turdus ustulatus auduboni*, *Geothlypis trichas occidentalis*, *Sciurus nævius notabilis*, *Geothlypis macgillivrayi*, *Chondestes grammacus strigatus*, *Spizella monticola ochracea*, *Spizella socialis arizonæ*, and *Porzana jamaicensis*. Mr. N. C. Brown has previously recorded *Turdus auduboni** and *Spizella arizonæ*† from Kendall Co.; the others appear to be new to the State.—WILLIAM BREWSTER, *Cambridge, Mass.*

Birds New to the District of Columbia.—In addition to the Prairie Chicken (*Cupidonia cupido*), the capture of which was cited by Mr. Robert Ridgway in 'Forest and Stream,' of April 9, and the White-throated Warbler (*Helminthophila leucobronchialis*), noted by Mr. William Palmer

* Bull. N. O. C. Vol. VII, p. 38.

† Ibid., Vol. VII, p. 127.

in 'The Auk' for July, there were three accessions to the District fauna during the year 1885, viz.:—(1) English Teal (*Anas crecca*), shot on the Potomac River near Washington, in April, and presented to the National Museum (No. 106,061). (2) Stilt Sandpiper (*Micropalama himantopus*), taken on the Pawtuxent River, Maryland, September 8, by Mr. H. W. Henshaw, who has kindly communicated these data to me. This capture was made beyond the regular District boundary, but was, however, included in what has been tacitly regarded as its faunal and floral limits. (3) Northern Phalarope (*Phalaropus lobatus*), killed on the eastern branch of the Potomac, October 17, by Mr. F. S. Webster, in whose possession the bird now is.

A perusal of the catalogues of the bird department of the National Museum shows some interesting entries. Through the courtesy of Mr. Ridgway, the curator, I have been enabled to examine the twenty large volumes in which the collection is invoiced, with some interesting results, only one of which need be mentioned at this time. The first volume, which carries us back into the forties and represents the private collection of Professor Baird and his brother, shows the following entries:—

"*Tringa alpina*, ♂ [= ♀ ad.], Oct. 22, 1842, Washington, D. C." (No. 848.)

"*Pelidna alpina*, ♂, Oct. 20, 1842, Washington, D. C." (No. 1053.)

The Dunlin is not given in any of the lists of the birds of the District; and although the above captures were made nearly half a century ago, they are 'new' to the fauna.—Hugh M. Smith, *National Museum, Washington, D. C.*

CORRESPONDENCE.

[*Correspondents are requested to write briefly and to the point. No attention will be paid to anonymous communications.*]

Turner's List of the Birds of Labrador.

To the Editors of The Auk:—

Sirs: In reply to your criticism in 'The Auk' for October, 1885 (pp. 368, 369) upon my List of the Birds of Labrador, etc. (Proc. U. S. Nat. Mus., VIII, 1885, pp. 233–254), I would state that you have evidently misconstrued the List. It was intended only to present under that heading a list somewhat approaching the character of a catalogue of the birds of the region embraced within that heading.

Access was had to all the material bearing upon the subject, and it was compiled as concisely as possible. With that material was incorporated the briefest possible references to the species of birds obtained by me. I deemed it necessary to give only a scanty sketch of Ungava, a hitherto unknown district.

The remarks were made as brief as possible in order that it should not be considered as a preliminary report upon my own investigations. I made no reference in the List to my present work of preparing a report upon the natural history of the region included under the heading of that List; and, so far as the published List is concerned, it has no connection with the report now well under way. A plan, other than following the recognized natural order of listing the birds, was not necessary for the purpose of that List.

In regard to the omission of certain species, you mention two, but there is no record of the indubitable occurrence of *Larus canus* within the region defined. The young specimen, in first plumage, of *Larus canus*, upon which is based the statement of the occurrence of this species in Labrador, is in the U. S. National Museum. The identification, however, is regarded by competent authorities as so extremely doubtful that it was deemed judicious to exclude it altogether.

I regarded the alleged discovery of the Pacific Eider, by Stearns, in Labdor as so extremely improbable that reference to it was not considered necessary. The reference made by Dr. L. Stejneger, in the October number of 'The Auk' for 1885 (p. 385) has no connection whatsoever with Labrador, Newfoundland not being a portion of the territory embraced under the heading of my List.

I purposely stated that the extracts were given in the List without comment or responsibility for their assertions, as a discussion of them was not deemed to be properly within the scope of the List, however tempting it may have been.

In regard to the several species accredited to Labrador by Audubon, I considered it well to include them; and now express the desire that some competent ornithologist, like Professor J. A. Allen, of the American Museum of Natural History of New York, who is specially fitted for the task, investigate each presumably doubtful species and reject such as may be considered as not entitled to a place in a list of the birds of that region.

LUCIEN M. TURNER.

Smithsonian Institution, Washington, D. C.
October 28, 1885.

[We are very glad to learn that Mr. Turner's 'List' was not intended as a final report upon his ornithological work in Labrador, and regret that we fell into the error of so misconstruing it. As, however, it was based largely upon his own observations, and as no hint was given that any other report was contemplated, our conclusion was not only a natural one, but one we find to have been quite generally entertained.—J. A. A.)

Revival of the Sexual Passion in Birds in Autumn.

TO THE EDITORS OF THE AUK:—

Sirs: On the morning of the 12th inst. I noticed a pair of Bluebirds toying with each other affectionately, and once certainly—twice as I thought—they were in the attitude, if not in the act, of copulation. The

question occurred to me at the moment, and I should like to propose it to the readers of 'The Auk,' whether birds may not be subject to a revival of the sexual passion in autumn, and whether this may not be connected with the well-known fact that many species have a second period of song after a longer or a shorter interval of silence. Is anything known on this point?

BRADFORD TORREY.

Boston, October 13, 1885.

NOTES AND NEWS.

MR. JOHN BURROUGHS has achieved a reputation as a popular, though not over-correct, writer on a variety of natural history topics, and is the author of many delightful essays about birds, and has even come to be looked upon as somewhat of an ornithologist, not only by the general public, but by ornithologists themselves. But his recent effusion on 'Bird Enemies,' in the 'Century' for December, 1885 (pp. 274-278), is for him at least an unfortunate production, being surprisingly weak on the score of intelligence, to say nothing of good taste. It is grossly erroneous in statement, slanderous in spirit, and betrays a degree of ignorance and a narrowness of vision on the part of this well-known writer, which would be quite beyond belief were not his name appended to the article. In speaking of the *natural* enemies of birds he is either not up to his usual standard, or we have heretofore ranked his proficiency in matters of this sort quite too highly. But when he classes ornithologists "as among the worst enemies" the birds have, and closes his article by saying, "but the professional nest-robber and skin-collector [his pet epithets, as the context shows, for ornithologists] should be put down, either by legislation or with dogs and shotguns," he betrays the usual intolerance begotten of ignorance. No further proof of his lack of appreciation of the requirements of science is required than his dictum that a student of ornithology "needs but one bird and one egg of a kind." Comment on such a statement in these pages would be superfluous, but unfortunately the general public is as ignorant as this 'blind leader of the blind.'

Can it be that our friend is so entirely unconscious of the wholesale slaughter of birds for millinery purposes as his complete silence on this subject would seem to indicate?—a slaughter which runs into the millions annually, compared with which the total destruction of birds for scientific, or *quasi*-scientific, purposes is as 'but a drop in the bucket.' Can it be, too, that his acquaintance with genuine ornithologists is so slight that he does not know that they, as a class, are among the best friends the birds have; that they never destroy wantonly or needlessly, and often regret the necessity of taking the lives of birds in behalf of scientific progress; that they deplore and frown upon much of the egg-collecting done in the

name, but not in the spirit and interest, of science; and that they are already combining aggressively to check the wholesale slaughter of birds, the real extent, purpose, and source of which our violent critic seems never to have dreamed? While intelligent criticism is generally welcome, and usually beneficial, an ignorant tirade is unquestionably harmful, even to the cause it is intended to promote: and it is to be hoped that when next Mr. Burroughs assumes the rôle of public censor he will have a fair degree of acquaintance with the subject he takes in hand.

The A. O. U. Committee for the Protection of Birds met at the office of Mr. William Dutcher, 51 Liberty Street, New York City, on December 12, and organized for work by the choice of Mr. George B. Sennett for Chairman, and Mr. Eugene P. Bicknell for Secretary. Several new members were added to the Committee, and there was some preliminary discussion of plans and methods of work. A second meeting was held on December 19, at the American Museum of Natural History in New York, in accordance with a vote passed at the previous meeting to hold a sitting (for the present at least) at 4 P. M. on Saturday of each week, at the American Museum. At each of these sittings seven of the twelve members of the Committee (all of those resident in New York) were present, and much was done in the way of preliminary work. A subcommittee was appointed to collect statistics respecting the extent of trade in bird skins for millinery purposes, and the destruction of birds, particularly in the neighborhood of New York, and also elsewhere in the United States; and another subcommittee to procure a full series of the legislative enactments of the different States in behalf of bird protection, as a basis for intelligent action in respect to this phase of the subject.

It seemed to the Committee that a large part of its work must be directed, for the present at least, toward a diffusion of information among the people at large respecting the very serious magnitude of the destruction of bird life for purely mercenary purposes, and its necessarily terrible influence in diminishing the number of birds—an effect already in many instances appallingly evident—and the creation of a sentiment against the use of birds for decorative purposes, and in general for the better protection of our native birds. The Committee has already begun the collection of material bearing on this general subject, which will soon be elaborated and widely published.

At the meeting of the Nuttall Ornithological Club, held December 1, 1885, the annual election of officers was held, resulting in the re-election of the present incumbents, except Recording Secretary H. A. Purdie and Corresponding Secretary J. A. Allen, the former having resigned and the latter being no longer in Cambridge. The officers for 1886 are as follows: President, William Brewster; Vice-President, W. A. Jeffries; Recording Secretary, Arthur P. Chadbourne; Corresponding Secretary, H. A. Purdie; Treasurer, Charles F. Batchelder.

The meetings are held the first and third Tuesdays of each month, from October to June inclusive, but for the present will be informal, owing to the absence of a number of the prominent members.

The death of Dr. Samuel Cabot of Boston, on April 13, 1885, in his seventieth year, removes another of the earlier ornithologists who were the contemporaries of Audubon and Nuttall. Dr. Cabot was graduated at Harvard College in 1836, and at the Harvard Medical School in 1839. In 1841-42 he made an expedition to Yucatan, where he gathered important collections in ornithology, discovering, among other new species, the Ocellated Turkey (*Meleagris ocellata*), described by him in 1842. From this date till 1858 he contributed numerous short papers on birds to the 'Proceedings' and 'Journal' of the Boston Society of Natural History (Proc., Vols. I-IV; Journ. Vols. II-V), relating largely to his ornithological work in Yucatan, but also to the birds of the United States, and more especially to the rarer species of New England. He also wrote briefly on other Natural History subjects. In 1850 his work in ornithology practically ceased, in consequence of the pressure of professional engagements, but he maintained a strong interest in the subject until his death. His ornithological collection and notes have passed into the possession of the Boston Society of Natural History, in which society he was for many years Curator of the department of Ornithology. The types of many of his species still exist.

Dr. Cabot's published papers on ornithology, aside from his reports as Curator, number not far from fifty, ranging in length from a few lines to seven or eight pages, and are in part anatomical. The more important of his contributions are the following: On the Birds of Yucatan, in Stephens's 'Natural History of Yucatan'; Description and Habits of some Birds of Yucatan; Red and Mottled Owls; Observations on the Character and Habits of the Ocellated Turkey; Further account of some of the Birds of Yucatan; The Dodo a Rasorial and not a Raptorial Bird; On three new Woodpeckers from Yucatan; Supposed identity of *Anas penelope* and *A. americana*, etc.

Mr. John Snowdon Howland, an Associate Member of the A. O. U., died at his home in Newport, R. I., September 19, 1885. Mr. Howland was well known as an oölogist, and at his death possessed one of the finest private oölogical collections in this country, and one which was especially noteworthy for its quality. He was for many years a great sufferer from a disease which not only prevented active field work, but which often for months confined him to his bed. He was greatly respected and esteemed by those of his fellow workers who had the pleasure of his personal acquaintance.

The publication of the A. O. U. Code and Check-List has been unvoidably delayed, but the appearance of the work within a few weeks may now be confidently expected.

THE AUK:

A QUARTERLY JOURNAL OF

ORNITHOLOGY.

VOL. III. APRIL, 1886. No. 2.

THE BIRDS OF WESTERN MANITOBA.

BY ERNEST E. T. SETON.

For the sake of conciseness and convenience of reference I will first distinguish the various natural divisions of the country.

1. The Assiniboine Valley, or first prairie steppe. This includes all of Manitoba south and west of a line drawn from Pembina Mountain north, just west of Portage la Prairie, and thence northwest to Fort Pelly. This line is also the eastern edge of the cretaceous formation. The district is essentially a prairie region, the only wooded tracts of any extent being the flat tops of the elevated table lands, known as Pembina, Turtle, Riding, and Duck Mountains. The first two are at the United States Boundary. The others are on the northeast edge of this region. Carberry is just north of the Assiniboine River, about the center of the region. The Big Plain is an unusually flat prairie, between Carberry and the Riding Mountain. The Big Swamp is a spruce and tamarac swamp, between Carberry and the river. Moose Mountain is just outside and west of Manitoba, at the head of the Souris River. Qu'Appelle is on the Qu'Appelle River, outside and west of Manitoba, one hundred miles up the river from its junction with the Assiniboine.

The observations for the region are my own, as I have visited nearly every part of it. I have, however, received much valuable

assistance from Mr. G. F. Guernsey, who is responsible for the records from Qu'Appelle.

2. The Red River Valley. This includes the country east of the first region, south of the large lakes, west of the 96th meridian, and north of the United States Boundary. This also is a prairie region, but of lower level than the preceding and characterized by extensive tracts of marsh. It is partially wooded in the southwest. Geologically it is chiefly Silurian on the east side of the river, and Devonian on the west. Long Lake is a long, marshy body of water lying just west of Winnipeg. Shoal Lake is an extensive marshy lake near the southeast end of Lake Manitoba. Although I have visited this region myself, my notes are chiefly from information supplied by Mr. Wm. L. Hine of Winnipeg, and Mr. C. W. Nash of Portage la Prairie.

3. The Winnipegoosis Basin. This includes the country which drains into Lakes Winnipegoosis and Manitoba. This is a forest region, and is apparently all of the Devonian formation. Red Deer Lake and River, and Swan Lake and River empty into the northwest end of Lake Winnipegoosis. Waterhen River and Lake empty into the same lake on the east. Porcupine Mountain is at the northwest point of the region. Manitoba House is on the east side of Lake Manitoba, thirty miles south of the narrows. I have visited this region myself, but my information is chiefly based on notes by Professor Macoun.

The fauna of the basin of Lake Winnipeg appears to resemble that of the Winnipegoosis region, but as yet almost nothing is known of the district. Norway House, on the Nelson River at the north end of the Lake, is outside of the province, but is referred to in several brief notes on distribution.

Except when otherwise stated, all records for the Assiniboine region are to be accredited to myself; all for Red River region to Mr. Hine; all for the Winnipegoosis region to Professor John Macoun of the Canadian Geological Survey; and all for the Nelson River region to Professor Robert Bell of the Canadian Geological Survey. And I would here take the opportunity of thanking these gentlemen for their courteous assistance.

By "all over," I mean in suitable places throughout the Red River and Assiniboine Valleys. The generalization is sometimes based on the occurrence of a species in five or six chief localities, but usually on more extensive observation. Dates for arrival and

departure are given for Carberry and are approximate. "Summer resident" means also breeding. The nomenclature is that of the new A. O. U. Check List. The local English names are added after the English name of the A. O. U. List.

1. **Æchmophorus occidentalis.** WESTERN GREBE.—Tolerably common summer resident in Red River Valley, chiefly towards the north. Quite common at Shoal Lake, near Lake Manitoba. "Breeding on Lake Manitoba and very abundantly in the marshes of Waterhen River, between it and Lake Winnipegoosis."

2. **Colymbus holbœllii.** HOLBŒLL'S GREBE.—Rare summer resident in Red River Valley. "Breeds abundantly in the marshes of Waterhen River."

3. **Colymbus auritus.** HORNED GREBE.—Abundant summer resident all over. April to October.

4. **Colymbus nigricollis californicus.** AMERICAN EARED GREBE.—"Breeding abundantly on Turtle Mountain and at points along the Mouse [Souris] River" (*Coues*). "Quite common in the western prairie regions" (*Macoun*).

5. **Podilymbus podiceps.** PIED-BILLED GREBE. DABCHICK.—Common summer resident all over.

6. **Urinator imber.** LOON.—Tolerably common summer resident on the large lakes and rivers only. "Common only on the northern lakes in forest (Winnipegoosis) country." Nelson River District.

7. **Urinator lumme.** RED-THROATED LOON.—Tolerably common summer resident about the large lakes. Breeds on Duck Mountain, and not uncommon in the Upper Assiniboine Valley. Common in Red River Valley. Found at Norway House.

8. **Larus argentatus smithsonianus.** AMERICAN HERRING GULL.—Apparently of general distribution. "Breeding in *all* the large prairie lakes" (*Macoun*). Breeds in great numbers at Lake Winnipeg (*Gunn*).

9. **Larus delawarensis.** RING-BILLED GULL.—Apparently of general distribution. "Breeding in all the lakes of any size" (*Macoun*). Breeds in considerable numbers in the swamps of the Saskatchewan (*Richardson*). Lake Winnipeg (*Hine*).

10. **Larus franklinii.** FRANKLIN'S GULL. ROSY GULL.—Noted only as a common spring migrant on the Big Plain. Abundant and breeding in the marshes of the Red River Valley. "Breeding abundantly on Lake Winnipegoosis." Breeds at Selkirk and at Lake Manitoba (*Gunn*).

11. **Larus philadelphia.** BONAPARTE'S GULL.—"Breeding on all the large lakes of the prairie region" (*Macoun*). "Common fall migrant at Winnipeg." Breeds near Shoal Lake (*Gunn*).

12. **Sterna forsteri.** FORSTER'S TERN.—"Breeding abundantly on Lake Manitoba, Waterhen River, and Lake Winnipegoosis." Breeds at Shoal Lake, Selkirk, and Lake Winnipeg (*Gunn*).

13. **Sterna hirundo.** COMMON TERN.—Common summer resident on the large lakes. "Breeding with the preceding" (*Macoun*). Occurs at Winnipeg (*Hine*).

14. **Hydrochelidon nigra surinamensis.** BLACK TERN.—Abundant summer resident all over. Arrives May 20; departs August 30.

15. **Hydrochelidon leucoptera.**—WHITE-WINGED BLACK TERN.—"Six of these birds seen on a small lake near the source of the western branch of Swan River on September 1, 1881. One of these was shot and examined, but owing to our lack of food and hurried movements it was not skinned" (*Macoun*). I give this as it stands and assume no responsibility.

16. **Phalacrocorax dilophus.** DOUBLE-CRESTED CORMORANT. CROW DUCK.—At Qu'Appelle, "summer visitant, breeding." "Breeding on Lake Winnipegoosis." Occasional on Red River. Once observed at Pembina (*Coues*). Common on Lake Winnipeg (*Hine*). Breeds at Shoal Lake (*Gunn*).

17. **Pelecanus erythrorhynchos.** AMERICAN WHITE PELICAN.—Apparently of general distribution. At Qu'Appelle, "Common, breeding at the lakes; have seen flocks of upwards of five hundred in the migrating season." Not observed in middle Assiniboine region. Common in Red River Valley, breeding about the large lakes. "Breeding on Lake Winnipegoosis."

18. **Merganser americanus.** AMERICAN MERGANSER. SHELDRAKE.—At Qu'Appelle, "Tolerably common summer resident." Breeding abundantly in the rivers emptying into Lake Winnipegoosis." "Rare" in Red River Valley.

19. **Merganser serrator.** RED-BREASTED MERGANSER. FISH DUCK.—At Qu'Appelle, "Tolerably common summer resident." "Breeds in all the northern streams" (*Macoun*). Rare in Red River Valley.

20. **Lophodytes cucullatus.** HOODED MERGANSER.—Tolerably common summer resident all over. "Very common in streams around the Porcupine Mountain."

21. **Anas boschas.** MALLARD.—Very abundant summer resident all over. "The most abundant Duck of the Northwest, breeding near all marshes north of the boundary" (*Macoun*). This includes the Winnipegoosis region. Nelson River; abundant. Arrives April 15; departs late in October.

22. **Anas obscura.** BLACK DUCK.—Very rare. Three or four specimens taken at Long Lake in four years.

23. **Anas strepera.** GADWALL.—Very rare in Red River Valley. "Only one specimen shot on the Assiniboine, September, 1881" (*Macoun*). Along the south boundary "abundant, breeding" (*Coues*).

24. **Anas americana.** BALDPATE.—Summer resident. Not common. One taken near Shell River, on the upper Assiniboine, July, 1882. "Frequent on the Assiniboine, 1881" (*Macoun*). Not common in the Red River Valley. In the boundary region, "abundant; breeding" (*Coues*).

25. **Anas carolinensis.** GREEN-WINGED TEAL.—Abundant summer resident all over. "Very common near Norway House; scarce northward." Arrives April 20; departs in October.

26. **Anas discors.** BLUE-WINGED TEAL.—Very abundant summer resident all over. Arrives late in April; departs early in October.

27. **Spatula clypeata.** SHOVELLER.—Common summer resident all over. Lake Winnipeg (*Bell*). Arrives late in April; departs late in October, like the other Ducks, when the frost seals the ponds.

28. **Dafila acuta.** PINTAIL.—Common summer resident all over. Breeds near Norway House. Arrives late in April; departs in October.

29. **Aix sponsa.** WOOD DUCK.—Very rare in Assiniboine Valley. One pair taken on the Big Plain. In Red River Valley, "rare, but a few pairs are always to be found about the creeks flowing into Lake Winnipeg from the south."

30. **Aythya americana** REDHEAD.—Abundant summer resident all over. "Breeds abundantly in the marshes of Waterhen River." Arrives in April; departs in October.

31. **Aythya vallisneria.** CANVAS-BACK.—"Fairly common at Lake Manitoba, but not generally breeding" (*Hine*). Breeding on Turtle Mountain (*Coues*).

32. **Aythya marila nearctica.** AMERICAN SCAUP DUCK. BIG BLUE-BILL.—Common summer resident in Red River Valley, and northern part of Assiniboine region at least. "A few breeding on Lake Winnipegoosis, June, 1881." Arrives late in April; departs in October.

33. **Aythya affinis.** LESSER SCAUP DUCK. LITTLE BLUE-BILL.—Very abundant summer resident all over. "Breeding more commonly than the preceding, 1881."

34. **Aythya collaris.** RING-NECKED DUCK. MARSH BLUE-BILL.—In Red River Valley "abundant." "Breeding in the marshes of Waterhen River, 1881."

35. **Glaucionetta clangula americana.** AMERICAN GOLDEN-EYE. WHISTLER. — Near Winnipeg, "common, breeding." Rare, breeding at Portage La Prairie (*Nash*). "Tolerably common" at Qu'Appelle. "A few breed in the Waterhen River marshes." "Breeds at Norway House."

36. **Charitonetta albeola.** BUFFLEHEAD.—Common summer resident all over. Arrives April 15; departs in October.

37. **Oidemia deglandi.** WHITE-WINGED SCOTER.—Found it apparently breeding at Shell River, on the upper Assiniboine, July 6, 1882. At Qu'Appelle it is a "common summer visitant." In the Red River Valley, scarce but regular.

A single specimen of the Surf Scoter (*Oidemia perspicillata*) was taken by Mr. Guernsey at Qu'Appelle in the fall of 1883.

38. **Erismatura rubida.** RUDDY DUCK.—At Qu'Appelle, a common summer visitant. At Portage la Prairie, "very rare summer resident" (*Nash*). Red River Valley. "a few breed each year about Long Lake." At Shoal Lake, breeding (*Nash*). Common and breeding at Turtle Mountain and along the boundary west (*Coues*).

39. **Chen hyperborea nivalis.** GREATER SNOW GOOSE. WAVEY.—Abundant spring migrant all over: less common in the fall. Arrives May 15, and again in October.

40 **Anser albifrons gambeli.** AMERICAN WHITE-FRONTED GOOSE.—Secured one of a pair near Turtle Mountain, May 19, 1882.

41. **Branta canadensis.** CANADA GOOSE. WILD GOOSE.—Tolerably common summer resident all over; abundant in the migrations. Arrives in April; departs late in October.

41 *a*. **Branta canadensis hutchinsi.** HUTCHINS'S GOOSE.—Taken on Red River by Kennicott.

42. **Branta bernicla.** BRANT.—Occurs as a migrant on Big Plain. No specimens taken.

43. **Olor columbianus.** WHISTLING SWAN.—Not uncommon about the large lakes. Not demonstrated to breed.

44. **Olor buccinator** TRUMPETER SWAN.—This species doubtless occurs as a migrant though I can give no authentic records.

45. **Botaurus lentiginosus.** AMERICAN BITTERN.—Common summer resident all over. Throughout the Winnipegoosis region. North to York Factory. Arrives about the middle of May; departs in October.

46. **Botaurus exilis.** LEAST BITTERN.—One taken by Mr. Hine, near Winnipeg.

47. **Ardea herodias.** GREAT BLUE HERON.—Not noted by me anywhere in the Assiniboine region, though reported a "tolerably common summer resident" at Qu'Appelle. A very rare summer visitant at Portage la Prairie (*Nash*). More common in the Red River Valley. "Shot on Swan River, April 28th, 1881. Not very common." Said to be common on the Duck Mountain.

48. **Nycticorax nycticorax nævius.** BLACK-CROWNED NIGHT HERON.—Rather common summer resident along the Red River and at Shoal Lake.

Professor Macoun gives the Green Heron as "rather common on the Assiniboine, near the mouth of Shell River. September 25, 1881." Surely this remark should refer to the present species, which he omits altogether.

49. **Grus americana.** WHOOPING CRANE. FLYING SHEEP.—Tolerably common migrant all over. "Breeding in the marshes at Moose Mountain" (*Macoun*). Also, I am informed, at Shoal Lake, near the southeast corner of Lake Manitoba.

50. **Grus canadensis.** LITTLE BROWN CRANE. SANDHILL CRANE.—Common summer resident all over. Norway House. Arrives April 21; departs late in September.

51. **Rallus virginianus.** VIRGINIA RAIL.—Summer resident about Winnipeg. Throughout Winnipegoosis region, "not common."

52. **Porzana carolina.** SORA. COMMON RAIL.—Abundant summer resident all over. Have taken half-a-dozen nests in a day, on the Duck Mountain. "Common west of Porcupine Mountain, and at the head of Swan River, September 1, 1881."

53. **Porzana noveboracensis.** YELLOW RAIL. WATER SPARROW.—On the 13th of July, 1883, a specimen of this Rail was brought to me alive by a farmer, who caught it in a slough where he was cutting wild hay. Being just then called away, I placed the bird in a coop, and on my return it was gone. But the record is, I believe, safe, especially as Hutchins reported the species from Hudsons Bay.

54. **Fulica americana.** AMERICAN COOT.—Abundant summer resident all over. Not common in the Winnipegoosis region. Arrives in April; departs late in October.

55. **Phalaropus lobatus.** NORTHERN PHALAROPE.—Rare spring and fall migrant; noted about Winnipeg only.

56. **Phalaropus tricolor.** WILSON'S PHALAROPE.—Common on the prairies in spring in Red River Valley; breeds at Long Lake and at Lake Winnipeg. "Breeding around ponds at Moose Mountain, July 24, 1880" (*Macoun*).

57. **Recurvirostra americana.** AMERICAN AVOCET.—"Very abundant around saline ponds and lakes throughout the Northwest. Shot at the base of the Coteau [du Missouri], July 28, 1880" (*Macoun*). The region referred to is to the southwest, and may be partly within Manitoba. No other records.

58. **Philohela minor.** AMERICAN WOODCOCK.—Very rare summer resident of Red River Valley, as follows. At Winnipeg less than a dozen birds noted during four years. At Portage la Prairie, one or two pairs seen each year (*Nash*).

59. **Gallinago delicata.** WILSON'S SNIPE.—Abundant summer resident all over, including Winnipegoosis region. North to Nelson River. Arrives April 20; departs September 30.

60. **Macrorhampus griseus.** DOWITCHER.—Abundant migrant on the Souris, and probably breeding (*Coues*). Very rare migrant about Winnipeg; observed only in August and September. "Very abundant at Swan Lake House and Red Deer Lake, July and August, 1881."

A specimen of the Stilt Sandpiper (*Micropalama himantopus*) was taken by Professor Macoun, just west of Manitoba, north of the River Qu'Appelle, September 16, 1880.

61. **Tringa canutus.** KNOT. ROBIN SNIPE.—Common migrant along Red River.

62. **Tringa maculata.** PECTORAL SANDPIPER.—A rare migrant in Red River Valley and on Big Plain. Common fall migrant on Turtle Mountain (*Coues*). Apparently common to the west, as it is given "abundant on the great plains and northward during 1881" (*Macoun*). The plains are chiefly outside of Manitoba.

63. **Tringa fuscicollis.** WHITE-RUMPED SANDPIPER.—Observed in large flocks near Shoal Lake (Riding Mountain). June 4, 1884. Also on Duck Mountain, June 8, 1884.

64. **Tringa bairdii.** BAIRD'S SANDPIPER.—Noted as a migrant on the Big Plain. Migrating in small flocks along the Souris River near the Boundary (*Coues*). "Shot on Red Deer River, July 23, 1881."

65. **Tringa minutilla.** LEAST SANDPIPER.—A migrant along Red River. Observed at Turtle Mountain as a migrant (*Coues*). "Shot on Red Deer River, July 23, 1881."

66. **Tringa alpina pacifica.** RED-BACKED SANDPIPER. BLACKHEART. —Common migrant along Red River.

67. **Ereunetes pusillus.** SEMIPALMATED SANDPIPER.—A migrant

along Red River, frequenting the wet prairies. Observed along the Boundary during August (*Coues*). "Shot on Red Deer River, July 23, 1881."

68. **Calidris arenaria.** SANDERLING.—"Abundant on the west shore of Lake Manitoba, June 12, 1881." Numerous about Lake Winnipeg in June (*Kennicott*).

69. **Limosa fedoa.** MARBLED GODWIT.—Common summer resident on the wet prairies near Winnipeg, and on the Plains of the Souris.

70. **Limosa hæmastica.** HUDSONIAN GODWIT.—A rare migrant along Red River.

71. **Totanus melanoleucus.** GREATER YELLOW-LEGS. — Common migrant all over. Very abundant at Red Deer River. Norway House. Spring migration, late in April; fall, early in August.

72. **Totanus flavipes.** YELLOW-LEGS.—Common migrant all over. Abundant throughout the Winnipegoosis region. Nelson River. Chiefly noted in Assiniboine Valley about August 15.

73. **Totanus solitarius.** SOLITARY SANDPIPER.—Rare migrant all over. Frequent throughout the Winnipegoosis region. Abundant fall migrant along the Boundary; possibly breeding (*Coues*).

74. **Symphemia semipalmata.** WILLET.—Tolerably common summer resident on the Souris and Brandon Plains; occasional along the Boundary, from Red River westward (*Coues.*)

75. **Bartramia longicauda.** BARTRAMIAN SANDPIPER. PRAIRIE PLOVER. QUAILY.—Abundant summer resident all over. "Not seen in the forest (Winnipegoosis) region." Arrives May 7; departs August 30.

76. **Tryngites subruficollis.** BUFF-BREASTED SANDPIPER.—Rare migrant along Red River.

77. **Actitis macularia.** SPOTTED SANDPIPER.—Common summer resident all over. Frequent in the Winnipegoosis region. Norway House.

78. **Numenius longirostris.** LONG-BILLED CURLEW.—Rare summer resident on the wet prairies of the Red River, and noted in May, 1882, as tolerably common on the Souris.

79. **Charadrius squatarola.** BLACK-BELLIED PLOVER.—Tolerably common spring migrant on Big Plain. Noted on Riding Mountain June 4, 1884. Common spring migrant along Red River, frequenting fields; returns in large numbers during the summer.

80. **Charadrius dominicus.** AMERICAN GOLDEN PLOVER.—Common spring and fall migrant all over. Affects burnt prairies and ploughed land. Spring migration, middle of May; fall, in August and September.

81. **Ægialitis vocifera.** KILLDEER.—Common summer resident all over. Manitoba House. Arrives late in April; departs last of August.

82. **Ægialitis semipalmata.** SEMIPALMATED PLOVER. RING PLOVER. —Rare migrant. "Occurs along Red River." "Shot on Red Deer River at Salt Springs, July 22, 1881, and at Lake Manitoba." Lake Winnipeg (*Kennicott*).

83. **Ægialitis meloda.** PIPING PLOVER.—"Shot in company with Sanderlings on the shores of Lake Manitoba, June 12, 1881." Four specimens taken at Lake Winnipeg (*Gunn*).

84. **Arenaria interpres.** TURNSTONE.—Along Red River; rare. "Found occasionally about the prairie ponds, and in pairs about Lake Winnipeg; apparently goes further north to breed. Returns about August 15."

85. **Dendragopus canadensis.** CANADA GROUSE.—"Very numerous in the poplar woods to the north of Fort Pelly (*Macoun*). "Abundant in the woods about Lake Winnipeg, but so tame and fearless that its pursuit can scarcely be called sport" (*Hine*).

86. **Bonasa umbellus umbelloides.** GRAY RUFFED GROUSE.—Abundant resident, probably all over, as it was noted on Duck and Riding Mountains, all along the Assiniboine, and about the Big Plain, as well as in the Red River region. Throughout Winnipegoosis region. Exhibits considerable variation of plumage. (See 'Auk' for July, 1885, pp. 270, 271.)

87. **Lagopus lagopus.** WILLOW PTARMIGAN.—Has been taken on the east shore of Lake Winnipeg (*Hine*). Norway House.

88. **Tympanuchus americanus.** PRAIRIE HEN.—In 1872 Dr. Coues wrote: "I have no reason to believe that it occurs at all in Northwestern Minnesota or Northern Dakota." In 1882, when first I visited Manitoba, the species was nearly unknown in the country; the only known specimen having been taken near Winnipeg in 1881. In 1883, Mr. Hine informs me, it began to be common at Pembina. In 1884 it was not only common at Winnipeg, but had also for the first time made its appearance at Portage la Prairie, on the Assiniboine.

89. **Pediocætes phasianellus columbianus.** COLUMBIAN SHARP-TAILED GROUSE. PRAIRIE CHICKEN.—Very abundant resident all over. North to the narrows of Lake Winnipeg, and thence eastward as far as Long Lake and Pic River, on Lake Winnipeg (*Bell*). This species lives exclusively on the open prairie in the summer, and exclusively in the wooded districts in the winter, so that it is in a sense migratory.

90. **Ectopistes migratorius.** PASSENGER PIGEON.—Common summer resident, probably all over, as it was noted on Riding Mountain, along the Assiniboine, on Big Plain, on Turtle Mountain (*Coues*), and northward, as well as all over the Red River Valley. Thoughout the Winnipegoosis region. Often very abundant during the migrations. I am not aware of the existence of any extensive "rookeries." Arrives early in May; departs in October.

91. **Zenaidura macroura.** MOURNING DOVE.—"Common in Pembina in June" (*Coues*). Rare at Winnipeg.

92. **Cathartes aura.** TURKEY VULTURE.—Common summer resident in the Assiniboine Valley only. One specimen taken on Red River (*Blakiston*). The present species, the Missouri Skylark, and others, appear to confine themselves to the Assiniboine region as defined; while the Bluebird, the Woodcock, and others are as characteristic of the Red River Valley.

93. **Circus hudsonius.** HARRIER.—Abundant summer resident all over. The adults in blue plumage are common in spring and fall. Arrives April 15; departs October 15.

94. **Accipiter velox.** SHARP-SHINNED HAWK.—Common summer resident of Red River Valley. Taken on the Souris (*Coues*). Rather rare on the Big Plain. Arrives April 15; departs October 15.

95. **Accipiter atricapillus.** AMERICAN GOSHAWK.—Tolerably common fall and winter visitant on the Big Plain and about Winnipeg. Not noted during the breeding season; usually appearing in August.

96. **Buteo borealis.** RED-TAILED HAWK.—Tolerably common summer resident of the wooded regions all over. Apparently complementary of the next, which is found in more open country and on the prairie. Arrives April 15; departs October 15. None that I took appeared to be referable to the form *krideri*.

97. **Buteo swainsoni.** SWAINSON'S HAWK. COMMON HENHAWK.—Very abundant summer resident all over; breeds perhaps twice each season. Have seen two black specimens. Arrives April 15; departs October 15.

98. **Buteo latissimus.** BROAD-WINGED HAWK.—Very rare summer visitant on the Big Plain. More common and probably breeding in Red River Valley.

99. **Archibuteo lagopus sancti-johannis.** AMERICAN ROUGH-LEGGED HAWK.—Tolerably common fall visitant on the Big Plain and about Winnipeg. Less common in the spring.

100. **Archibuteo ferrugineus.** FERRUGINEUS ROUGH-LEG.—This species is doubtless Manitoban, as Dr. Coues found it breeding on the Pembina Mountain, and I have seen a specimen taken immediately to the west of the Province.

101. **Aquila chrysaëtus.** GOLDEN EAGLE.—Very rare, but apparently resident on Big Plain and along Red River.

102. **Haliaëtus leucocephalus.** BALD EAGLE.—Very rare summer visitant on Big Plain and on Red River, probably breeding.

103. **Falco peregrinus anatum.** DUCK HAWK.—Much like the Goshawk in movements and distribution. Probably breeds in the neighborhood of the large lakes. Quite common on the Big Plain, about August.

104. **Falco columbarius.** PIGEON HAWK.—Common fall migrant on Big Plain, Riding Mountain, and in Red River Valley. Norway House.

105. **Falco richardsonii.** RICHARDSON'S MERLIN.—Probably Manitoban. Taken by Dr. Coues on the boundary at the headwaters of the Souris.

106. **Falco sparverius.** AMERICAN SPARROW HAWK.—Abundant summer resident all over. Throughout the Winnipegoosis region. Arrives April 20; departs late in September.

107. **Pandion haliaëtus carolinensis.** AMERICAN OSPREY.—FISH HAWK. Not yet taken in Manitoba, though it doubtless occurs, as it is given, "Common around Lake Superior and at Churchill River" (*Bell*). Occasional at Qu'Appelle. North to Barren Grounds (*Richardson*). These with other records surround without actually touching our Province.

108. **Asio wilsonianus.** AMERICAN LONG-EARED OWL.— Common summer resident on the Big Plain and in the Red River Valley. Probably all over, as it is found north to the Saskatchewan (*Richardson*). Arrives April 15; departs October 20.

109. **Asio accipitrinus.** SHORT-EARED OWL. MARSH OWL.—Common summer resident on Big Plain and in Red River Valley. Arrives April 1; departs October 30.

110. **Syrnium nebulosum.** BARRED OWL.—Tolerably common summer resident about Winnipeg and northward in Red River Valley, arriving April 1, departing November 1.

111. **Ulula cinerea.** GREAT GRAY OWL.—One specimen taken on the Big Plain, September 29, 1884. Rather common along the Red River, and resident in the woods about Lake Winnipeg.

112. **Nyctala tengmalmi richardsoni.** RICHARDSON'S OWL.—Rare on Big Plain. Tolerably common resident along Red River.

113. **Nyctala acadica.** SAW-WHET OWL.—Rare resident. Noted only on Red River.

114. **Bubo virginianus subarcticus.** WESTERN HORNED OWL.—Common resident all over. This form of *Bubo* is lighter in color than the true *B. v. subarcticus*. It is probably just intermediate between that form and var. *arcticus*.

114 *a*. **Bubo virginianus arcticus.** ARCTIC HORNED OWL.—One shot near Duck Mountain in the fall of 1883. Touchwood Hills, October, 1880 (*Macoun*).

115. **Nyctea nyctea.** SNOWY OWL. WHITE OWL.—Common winter visitant, probably all over, as it is reported from all points where observations have been made in winter; this excludes only the Souris Plains. Rare summer resident near Lake Winnipeg (*Gunn*). Arrives October 1: departs April 15.

116. **Surnia ulula caparoch.** AMERICAN HAWK OWL.—Tolerably common winter visitant on the Big Plain and in the Red River Valley. Exceedingly abundant in the winter of 1884–85. Arrives late in September and remains until April.

117. **Coccyzus erythrophthalmus.** BLACK-BILLED CUCKOO.—A tolerably common summer resident, probably all over, as it was noted at Riding Mountain, Big Plain, and in the Red River region. First seen at Carberry usually late in June, but given by Mr. Nash as arriving at Portage la Prairie late in May. Departs early in the fall.

118. **Ceryle alcyon.** BELTED KINGFISHER.—Common summer resident all over. Very abundant on Red Deer and Swan Rivers. Lake Winnipeg (*Bell*). Arrives April 20; departs in October.

119. **Dryobates villosus leucomelas.** NORTHERN HAIRY WOODPECKER. —Common resident all over. Found throughout the Winnipegoosis region.

120. **Dryobates pubescens.** DOWNY WOODPECKER.—Common resident about Winnipeg, the Big Plain, Lake Manitoba and westward.

121. **Picoides arcticus.** ARCTIC THREE-TOED WOODPECKER.—Abun-

dant resident in the wooded parts about the Big Plain and in the Red River Valley. Red Deer River. Most plentiful in winter, therefore probably in some degree migratory.

122. **Picoides americanus.** AMERICAN THREE-TOED WOODPECKER.—Not taken, but Richardson ascribes to it a range which includes Northern Manitoba.

123. **Sphyrapicus varius.** YELLOW-BELLIED SAPSUCKER.—Common summer resident about the Big Plain, on the Souris (*Coues*), and in the Red River Valley. Manitoba House and Swan Lake House.

124. **Ceophlœus pileatus.** PILEATED WOODPECKER. COCK-OF-THE WOODS.—Rare resident in heavy timber. Occurs at Lake Winnipeg and Lake of the Woods (*Hine*). Selkirk (*Gunn*). At Swan River. Probably in all the great forests to the north, as it is found north to latitude 63° (*Richardson*).

125. **Melanerpes erythrocephalus.** RED-HEADED WOODPECKER.—A tolerably common summer resident about the Big Plain, and also along the Red River. It is probably a summer resident in all wooded sections.

126. **Colaptes auratus.** FLICKER. HIGHHOLDER.—Very abundant summer resident all over. Red Deer Lake. Arrives April 15; departs September 30.

127. **Antrostomus vociferus.** WHIP-POOR-WILL.—Abundant summer resident at Big Plain, Turtle Mountain, and in Red River Valley. Manitoba House. Arrives May 20; departs September 15.

128. **Chordeiles virginianus henryi.** WESTERN NIGHT-HAWK.—Very abundant summer resident all over. Manitoba House. Arrives May 24; departs August 30.

129. **Chætura pelagica.** CHIMNEY SWIFT.—Tolerably common summer resident all over. "A few observed at Swan Lake House."

(*To be concluded.*)

NOTES ON BIRDS OF THE SALT POND MOUNTAIN, VIRGINIA.

BY WILLIAM C. RIVES, JR., M. D.

IT has been well established by numerous observations that, as far as birds are concerned, the northern and southern limits of the various faunæ correspond far more closely with isothermal lines than with parallels of latitude.

In his very interesting paper on the Summer Birds of the Catskills,* Mr. Eugene P. Bicknell, after referring to an article by Professor Cope tending to prove that in accordance with the above-mentioned law the fauna of the southern Alleghanies possesses marked Canadian characteristics, calls attention to the fact that the Snowbird (*Junco hyemalis*) is the only species really typical of the Canadian fauna which has actually been ascertained to breed with regularity south of Pennsylvania.

During a short visit to the Salt Pond Mountain, in Giles County, Virginia, on June 4, 1885, and a few subsequent days, one or two additional species were seen by the writer, which, from the circumstance of its being the breeding season, would seem to show that they rear their young in this locality, and though the observations made were necessarily incomplete from want of time, some account of the birds met with during the few days spent at this little known locality may be of sufficient interest to be recorded.

The Salt Pond Mountain, one of the loftiest in Southwest Virginia, attains the height of 4500 feet,—the highest in the State, White Top Mountain, near the North Carolina line, reaching the altitude of 5530. It derives its name from the Salt Pond, now more appropriately called Mountain Lake, a beautiful sheet of fresh water enclosed between the summit of the mountain and its spurs, and lying at the great elevation of 4000 feet. The lake has for many years been a summer resort, but since the building of the New River Railway has become much easier of access, as it is but nine miles distant from Staytide, a station upon the west bank of the New River, opposite Eggleston's Sulphur Springs. The Salt Pond Mountain has long been known to botanists as possessing a very interesting flora, and has been visited by Professor Asa Gray and others of eminence in the science. It is one of the few places in which the rare plant *Sedum nevii*—originally discovered in Alabama—has been found. The flora of this region in general, which comprises as might be expected many northern species, has been carefully investigated by Howard Shriver, Esq., of Wytheville, Va., whose writings should be consulted by those interested in this subject.

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* Transactions of the Linnæan Society of New York, Vol. I, 1882.

On the occasion of my visit the mountain was reached by a drive of twenty-four miles from Christiansburg, on the Norfolk and Western Railway, passing through Blacksburg, the seat of the Virginia Agricultural and Mechanical College, situated in a beautiful and fertile valley, and over the Brush and Gap Mountains. The Salt Pond Mountain is visible for a great distance, but its massive proportions are particularly well seen from the northern slopes of the Gap Mountain, above the village of Newport. It presents, like many of the Virginian ranges, a long level top, which is slightly interrupted by the rounded eminence of Bald Knob, its highest peak, and at its western end falls away rather abruptly towards the valley of the New River. After leaving Newport and fording Sinking Creek, the ascent began. Proceeding upwards, a number of Bewick's Wrens (*Thryothorus bewickii*), with young already quite well grown, were found along the fences and among piles of brush in one of the clearings. Their movements were restless and active, like those of other Wrens, and their long tails were especially conspicuous. During the rest of the ascent but few if any birds were noticed. The road, which was very rough in places, at a point about two-thirds up the mountain turns completely round its western shoulder, here affording a magnificent and extensive view of distant ranges to the south and west, and of the New River Valley, and is carried along the side of a deep ravine, lying between this portion of the mountain and one of its outlying spurs.

Just beyond the summit of the ridge which terminates this valley, lies the lake, fringed in the greater part of its extent with rhododendrons (*Rhododendron maximum*), which when in flower in July must present a beautiful sight, and form an exquisite setting for this mountain gem. As it now exists, the lake is of comparatively recent origin, and is thought to have been formed by the accidental stoppage of some of the outlets of the stream, or small pond, which existed in this spot in the last century. Its greatest depth, according to Professor William B. Rogers, is from 56 to 60 feet. It is three-quarters of a mile long by half a mile wide, and at its northern end discharges its waters by a brook, which after a short course enters Little Stony Creek, a beautiful and picturesque stream, abounding in trout, which, in the course of its rapid descent to the New River, forms a fine

waterfall about seventy feet in height. Singularly enough, fish do not thrive in the lake itself.

At this lofty elevation the air is cool and bracing, and the numerous pleasant walks over the mountain crests offer many attractions. The condition of the vegetation showed a marked contrast with that of the lower country, which was in a much more advanced state, and the oaks still retained the silvery gray appearance which they present before the leaves are fully developed. The mountain is for the most part thickly wooded with various kinds of trees, but wherever there is a clearing the grass grows readily. The buckeye and the sugar maple — here known as the sugar tree — flourish, and in many of the ravines and sheltered spots are brakes of rhododendrons and dark and lofty hemlock spruces.

Among the plants observed were fine specimens of *Trillium grandiflorum*, with large rose-colored petals, the deep purple *Trillium erectum*—a characteristic northern species—*Cypripedium acaule*, *Cypripedium pubescens*, *Cypripedium parviflorum*, *Arisæma triphyllum*, *Pedicularis canadensis*, *Geranium maculatum*, *Sedum turnatum*, and *Houstonia cærulea*. The lily of the valley (*Convallaria majalis*) was in flower and moderately abundant, the laurel (*Kalmia latifolia*) was common, and in many places the woods were resplendent with the gorgeous blossoms of the beautiful flame-colored azalea (*Azalea calendulacea*). In the neighborhood of the lake and in the moist and shady woods the cinnamon fern (*Osmunda cinnamomes*) grew in abundance, while in many places the ground was covered with a dense growth of Clayton's fern (*Osmunda claytoniana*). Among other ferns met with were *Aspidium acrostichoides*, *Pteris aquilina*, and *Adiantum pedatum*.

The bird life did not appear to be very abundant. The Robin, however, was tolerably plentiful, and I noticed a nest doubtless constructed by this species, but which I did not examine. The Common Yellowbird (*Spinus tristis*) was seen in open ground near the lake, and in the woods the notes of the Oven-bird *Seiurus aurocapillus*) were frequently to be heard. The thick growth of oak and other bushes on the summit of Bald Knob afforded excellent shelter for ground birds, but appeared to be monopolized chiefly by the Towhee Bunting (*Pipilo erythrophthalmus*), whose notes were heard more frequently than the birds

themselves were seen. I observed a Turkey Buzzard (*Cathartes aura*) sailing about at the top of Bald Knob, and was afterwards informed that the nest had been discovered a short time previously, in a somewhat inaccessible position in one of the crevices among the rocks at the summit, but I did not secure an opportunity of seeing it. The Wood Thrush (*Turdus mustelinus*) frequented the mountain, as well as the Least Flycatcher (*Empidonax minimus*), which is not found in Tidewater and Middle Virginia in the breeding season, but was here noticed and heard uttering its usual *chebec*. The note of a Pewee (*Sayornis phœbe*) was also heard. The common Golden-winged Woodpecker (*Colaptes auratus*) was encountered, and a pair of Hairy Woodpeckers (*Dryobates villosus*) was observed at a high elevation, and from their excited notes and actions I inferred that they probably had young. A single specimen of the Green Heron (*Ardea virescens*) was seen at the outlet of the lake. A Catbird (*Galeoscoptes carolinensis*) was found June 6 sitting upon its nest, which contained four eggs, and was built in a rhododendron on the bank of Little Stony Creek.

It was of especial interest to meet with birds of the Canadian fauna. Of the Snowbird (*Junco hyemalis*) I saw in all about half a dozen individuals, the males in beautiful spring plumage. One pair was evidently mated and kept uttering their sharp alarm note *chick*, but though I searched for the nest for some time I was unable to find it. The fact of their breeding in this vicinity is not new.* The Black-throated Blue Warbler (*Dendroica cærulescens*) seemed to be not uncommon, and their hoarse *b-z-z-z-e-e* was often heard proceeding from the depths of the rhododendron thickets. Several Chestnut-sided Warblers (*Dendroica pennsylvanica*) were noticed, though they did not appear to be abundant. The Canada Warbler (*Myiodioctes canadensis*) was met with several times; one of them by its actions led me to suspect that it might have a nest, but in this case I was also unsuccessful in finding one. I saw, I believe, a pair of Blue Yellow-backed Warblers (*Compsothlypis americana*), but was not certain of their identification, and also one or two shy Thrushes whose species I did not determine. None of the other *Dendroicæ* were identified during my short stay, and the very characteristic note of the Black-poll (*Dendroica striata*) was

* See Avifauna Columbiana, pp. 63 and 97.

not heard, although it could hardly have escaped my observation had that bird been at all common.

The Snowbirds and the Warblers I have mentioned were not observed below the level of about 3000 feet.

In the country between the Salt Pond Mountain and Christiansburg, which has an average elevation of 2000 feet, were found the Wood Thrush, Towhee Bunting, Indigo Bird, Kingbird, Bay-Winged Sparrow, Catbird, Baltimore Oriole, Red-winged Blackbird, Common Dove, Crow, Purple Grackle, Yellow Warbler, Purple Martin, and Night Hawk, or Bull Bat, as it is called in the South. A single Red-headed Woodpecker (*Melanerpes erythrocephalus*) was seen, and the now ubiquitous English Sparrow has penetrated into even this comparatively remote part of the State. A small colony of Cliff Swallows (*Petrochelidon lunifrons*) had attached their nests to the shed of a stable at Blacksburg. The Quail (*Colinus virginianus*) was said to be abundant.

The species here recorded must form of course, but a very insignificant proportion of the birds of this region. The recent investigations of Mr. William Brewster in Western North Carolina will doubtless prove to have been of much importance and interest, and greatly increase our knowledge of the birds of the mountain districts of the South.

FIELD NOTES ON THE BIRDS OF WASHINGTON COUNTY, OREGON.

BY A. W. ANTHONY.

WASHINGTON COUNTY, Oregon, lies in the northwestern part of the State, about thirty miles from the coast, and ten miles southwest of the Columbia River, at its nearest point—far enough away to catch but comparatively few of its many sea birds. The Willamette River, about eight miles to the east, is a great resort for nearly all of the species of Ducks known to the State. These, however, are seldom seen in the eastern half of the county, except as they fly over to and from their feeding grounds, owing

to this part of the region being covered by a very dense growth of fir and pine, and lacking suitable bodies of water. The western half of the county, however, is more open, and has a few streams and ponds. The only body of water of any size is Wapita Lake, a large, shallow marsh, which is dry during the summer months. Here water birds fairly swarm during the fall, winter, and spring, and a few were found nesting along the stream that drains the lake.

The coast mountains, which border this region on the west, doubtless contain many species not to be found elsewhere in the county, but unfortunately I was unable to visit this locality.

My observations extended from February, 1884, to June, 1885, and were made mostly in the vicinity of Beaverton, in the eastern part of the county. Two days were spent in the central part, at Wapita Lake, early in November, but as the water birds had hardly begun to arrive, the list is necessarily very incomplete. A few birds, such as *Olor americanus*, *O. buccinator*, and *Bernicla nigrescens* are found in large numbers on the Columbia River, but are only seen in Washington County as they fly over during migrations, and are found on rare occasions on Wapita Lake. Other species, as *Pandion haliaëtus carolinensis*, *Grus mexicana*, and *Grus americana* were more or less common in other parts of the State, but were only seen in the county as they flew over in spring and fall, none being known to stop.

Although the winters are usually very mild, with very little if any snow, on December 11, 1884, a very heavy snow storm set in, accompanied by high wind from the northwest, lasting for nearly three weeks, with hardly an intermission. Such a storm was something unheard of in this part of the State, and it had the effect of driving a great many of our winter birds south, and doubtless other species that would have wintered with us were driven past unnoticed. After the storm, large numbers of *Sturnella magna neglecta*, and *Oreortyx pictus* were found dead, either frozen or starved. *Regulus calendula*, *R. olivaceus*, *Thryothorus bewickii spilurus*, and *Troglodytes hiemalis pacificus*, were not to be found at all after the storm, nor were they noticed in any number during the spring migration, they having chosen other routes north.

The list with the exception of a few species which were positively identified—one or two species of Hawks and Ducks

only—is given on the strength of my having taken specimens, or seen the birds within the limits of the region under circumstances that left but little if any doubt as to their identity. The list is necessarily incomplete in many respects, as almost the entire western half of the county was left unexplored, and other regions of importance were neglected owing to lack of time. The region about Beaverton, however, was thoroughly worked over, and I am satisfied that but few of the more common species escaped me. Several species of Grebes, Gulls, and Shore Birds were described to me by the sportsmen of Wapita Lake as being found later in the season; but as I was unable to visit that locality at the proper time, many interesting species were missed, and the list of shore and water birds is thus left very incomplete. The nomenclature and classification is that of the new A. O. U. Check List.

1. **Colymbus nigricollis.** AMERICAN EARED GREBE.—Common at Wapita Lake.

2. **Merganser americanus.** AMERICAN MERGANSER.—A few seen in December.

3. **Merganser serrator.** RED-BREASTED MERGANSER.—Not uncommon in winter.

4. **Lophodytes cucullatus.** HOODED MERGANSER.—Quite plenty at Wapita Lake in winter; a few seen at Beaverton in December.

5. **Anas boschas.** MALLARD.—Abundant winter resident; a few breed.

6. **Anas strepera.** GADWALL.—Not uncommon during migrations.

7. **Anas carolinensis.** GREEN-WINGED TEAL.—Abundant in winter; a few breed.

8. **Dafila acuta.** PINTAIL.—Abundant in fall and winter.

9. **Aix sponsa.** WOOD DUCK.—Common resident.

10. **Aythya affinis.** LESSER SCAUP DUCK.—Quite common at Wapita in October.

Another species of Duck was seen, probably *A. collaris*, but it was not taken. It is known to the sportsmen as 'River Canvasback.'

11. **Branta canadensis.** CANADA GOOSE.—Abundant winter resident.

12. **Branta canadensis hutchinsi.** HUTCHINS'S GOOSE.—The most abundant of our Geese. The farmers in the western part of the county told me that hundreds of bushels of wheat are destroyed annually by this and the foregoing species.

13. **Branta nigricans.** BLACK BRANT.—Occasionally seen flying over in spring and fall.

14. **Olor columbianus.** WHISTLING SWAN.—Rare in the county. Both *O. columbianus* and *O. buccinator* are common on the Columbia River during the winter. *O. columbianus* is occasionally found on Wapita Lake, but I could get no evidence in regard to the presence there of *O. buccinator*.

15. **Ardea herodias.** GREAT BLUE HERON.—Rare; occasionally seen in summer; one shot in December.

16. **Ægialitis vocifera.** KILLDEER.—Common in the western part of the county; only one or two noted at Beaverton.

17. **Gallinago delicata.** WILSON'S SNIPE.—Very abundant in the western part of the county in spring and fall; a few winter at Beaverton.

18. **Grus mexicana.** SANDHILL CRANE.—Very common fall migrant; seen but once in spring.

19. **Grus americana.** WHOOPING CRANE.—Rare; seen once or twice in fall, flying over in company with the preceding.

20. **Rallus virginianus.** VIRGINIA RAIL.—A few were seen in a collection in Portland, and I was told that they were common at Wapita Lake during summer.

21. **Fulica americana.** AMERICAN COOT.—Abundant at Wapita during migrations; a few breed.

22. **Colinus virginianus.** BOB-WHITE.—Rare. They were introduced some time since, but are still confined to a few favored localities.

23. **Oreortyx pictus.** MOUNTAIN PARTRIDGE.—Abundant. This little beauty was seen everywhere up to December last, when the big storm left hardly enough to perpetuate the species. The plume is noticeable in the chick just from the egg, in the form of a little tuft of down.

24. **Dendragopus obscurus fuliginosus.** SOOTY GROUSE.—Abundant resident. During the winter it stays high up in the firs and is very seldom noticed. At the first indication of spring the males begin to 'hoot.' This is not dissimilar to the 'booming' of the Prairie Hen. While uttering his love notes the bird may usually be seen about fifty to seventy-five feet from the ground, in a thick fir, his tail spread, wings drooping, and the air-sacks on either side of the neck filled to their utmost capacity. The note is deep and resonant, and although not loud can be heard for some distance. It is usually repeated from five to seven times, the first being loudest, gradually decreasing in energy to the last. This Grouse is an accomplished ventriloquist; I have often looked for half an hour for one supposed to be fifty yards in front of me, to find it as far in the rear. Nests found in May contained from five to seven eggs.

25. **Bonasa umbellus sabini.** OREGON RUFFED GROUSE.—Abundant. Has all the habits of the eastern Ruffed Grouse, but is far richer in plumage.

26. **Columba fasciata.** BAND-TAILED PIGEON.—Common summer resident. South of Beaverton is a large spring, the waters of which contain some mineral which has great attraction for these Pigeons, and here they are always to be found in large numbers.

27. **Zenaidura macroura.** MOURNING DOVE.—Common during summer.

28. **Cathartes aura.** TURKEY BUZZARD.—Not uncommon in summer.

29. **Accipiter velox.** SHARP-SHINNED HAWK. — A not uncommon resident.

30 **Buteo borealis calurus.** WESTERN REDTAIL.—Common resident. Very shy and hard to approach.

31. **Haliaëtus leucocephalus.** BALD EAGLE.—Rare. Two seen in December.

32. **Falco columbarius.** PIGEON HAWK.—Apparently rare; only one or two seen.

33. **Falco sparverius.** SPARROW HAWK.—Abundant summer resident.

34. **Pandion haliaetus carolinensis.** OSPREY.—Rare in the county; one or two seen flying over Beaverton in May.

35. **Ulula cinerea.** GREAT GRAY OWL.—Very rare. A very large Owl was described to me which I think was this species.

36. **Nyctala acadica.** SAW-WHET OWL.—Rare. One seen in July; occasionally heard in April.

37. **Megascops asio kennicottii.** KENNICOTT'S SCREECH OWL.—A not uncommon resident. One was caught in a steel-trap set in a deep narrow ditch. As the trap was sunk at least four inches under the water, and was not baited, it is a puzzle to me how the bird was caught.

38. **Bubo viginianus subarcticus.** WESTERN HORNED OWL.—Resident; but more common in winter. I am satisfied that var. *saturatior* is found with us in winter, but whether in summer, I am not able to say.

39. **Glaucidium gnoma.** PYGMY OWL.—Common resident. Often seen flying about in the bright sunlight, apparently seeing as well at that time as at night.

40. **Dryobates villosus harrisi.** HARRIS'S WOODPECKER.—Very common resident.

41. **Dryobates pubescens.** DOWNY WOODPECKER.—Not so common as the preceding.

42. **Dryobates pubescens gairdneri.** GAIRDNER'S WOODPECKER.—Seems to be very rare; only one or two seen.

43. **Sphyrapicus ruber.** RED-BREASTED SAPSUCKER.—Common resident. Seems to prefer the orchards to the forests, although often seen in the maples. A pair were seen excavating for a nest April 10, but as it was in a very large stub, and fifty feet from the ground, they were allowed to raise their brood in peace.

44. **Ceophlœus pileatus.** PILEATED WOODPECKER. 'Wood-cock' of the natives.—Found everywhere where the timber is thick and heavy. I have often walked up to within fifteen feet of one of these Woodpeckers and watched him for some time before he took fright.

45. **Melanerpes torquatus.** LEWIS'S WOODPECKER.—Common resident. Seems to have quite an attachment for certain localities, commonly oak timber, where the same birds are always to be found.

46. **Colaptes cafer.** RED-SHAFTED FLICKER.—Abundant resident. Since the new subspecies *saturatior* was assigned to this district by Mr. Ridgway, I am at a loss to know just what disposal to make of this bird.

47. **Chordeiles virginianus henryi.** WESTERN NIGHTHAWK.—Abundant during summer. Nests in openings in the timber.

48. **Chætura vauxi.** VAUX'S SWIFT.—Common summer resident. Hunts in flocks of fifteen or twenty. A pair were found nesting in a

very large stub late in May. The nest, however, was inaccessible. The birds would circle about fully two hundred feet above the stub until directly over the opening, then darting down like a flash would disappear with a sharp twitter.

49. **Trochilus rufus.** RUFOUS-BACKED HUMMINGBIRD. — Abundant. Breeds nearly everywhere. Nests were found in ferns, in bushes, trees, and the vines overhanging old embankments. The latter seems to be the most favored locality, six nests being found in an old railroad cut, in May and June. In July they all disappear.

50. **Tyrannus vociferans.** CASSIN'S KINGBIRD.— Rare. A few were seen in May, 1885.

51. **Contopus borealis.** OLIVE-SIDED FLYCATCHER. — Common in spring; a few breed. Often seen perched on the top of the tallest firs, two hundred feet from the ground.

52. **Contopus richardsoni.** WESTERN WOOD PEWEE.— Very common summer resident. It seems to prefer a less elevated perch than the preceding, and is often seen to descend almost to the ground to snap up a passing insect. The nest is saddled upon the limb, generally well out from the body of the tree on a horizontal branch, and usually quite well up in a deciduous tree, often an alder.

53. **Empidonax pusillus.** LITTLE FLYCATCHER — The most common of our Flycatchers. It is not distinguished from the preceding by the inhabitants, both being called 'Peach-brigade,' from the note of *C. richardsoni*. *E. pusillus* seems to prefer even a less elevated perch than *C. richardsoni*, and is oftener seen perched on the weed and grass stems than elsewhere. Nests found in July were in the forks of the tall rank ferns, generally about a foot or eighteen inches from the ground.

54. **Otocoris alpestris leucolæma.** PALLID HORNED LARK.—Not uncommon in winter, in company with *Anthus pensilvanicus*.

55. **Otocoris alpestris strigata.** STREAKED HORNED LARK.— A rather common summer resident. A nest found May 21 was built in a hole about three inches below the surface of the ground. It was composed of dry grasses and fine roots, lined with fine dry roots and a few horse hairs. It contained three fresh eggs. The bird was flushed from the eggs after dark, and I suppose must have been unable to find her way back, for although I watched the nest for several days she was not seen to go near it again.

56. **Corvus corax sinuatus.** AMERICAN RAVEN. Not uncommon resident. Often seen flying over at Beaverton.

57. **Corvus americanus.** AMERICAN CROW.—Not common. A few are seen at intervals throughout the year.

58. **Corvus carnivorus.** NORTHWEST CROW.—Rare; a few were seen at Beaverton that had wandered from the Willamette River.

59. **Pica pica hudsonica.** AMERICAN MAGPIE.—Rare resident. A few are found in favored localities.

60. **Cyanocitta stelleri.** STELLER'S JAY.—A very common resident. The same noisy, knowing fellow that is found everywhere in the West. The

nest is a very bulky affair, built of large sticks and twigs, with a good supply of mud, and lined with fine, dry grass. One found in April was eight feet up in a small fir. It contained four bright blue eggs, with a few light brown spots on the large end.

61. **Aphelocoma californica.** CALIFORNIA JAY.—Rare. A few were seen at Beaverton in October. It seems to be more common in the western part of the county.

62. **Perisoreus obscurus.** OREGON JAY.—Common winter resident. Fearless is an appropriate term to use in relation to this bird; it seems utterly devoid of fear. While dressing deer in the thick timber I have been almost covered with Jays flying down from the neighboring trees. They would settle on my back, head, or shoulders, tugging and pulling at each loose shred of my coat until one would think that their only object was to help me in all ways possible. At such times their only note is a low, plaintive cry.

In March they depart for the mountains to breed, although a few sometimes stay and breed in the more secluded parts of the county. On March 31, 1884, I took a nest and set of five eggs, which I think are the first discovered. The nest was placed about eighty-five feet from the ground in a fir, very well concealed. It was built close against the trunk, and was composed of sticks, twigs, and moss, rather loosely put together, and lined with cow hair, a few bunches of wool, and one or two feathers of *Bonasa*. It measured: Inside diameter, 3.12 inches; depth, 2.85 inches; outside diameter, 1.75 inches; depth, 5 inches. The eggs were five, very light blue, with a grayish cast, thickly covered with spots of brown and lilac, collected chiefly on the larger end. In one specimen were a few black hair-like lines over the large end. They are now in the United States National Museum. The breeding of this Jay here is a departure from its usual habits, I think.

63. **Agelaius phœniceus.** RED-WINGED BLACKBIRD.—Not common at Beaverton. This and the two following species are rather rare in the eastern part of the county, but were very abundant in the tules about Wapita Lake.

64. **Agelaius gubernator.** BICOLORED BLACKBIRD.—A few seen at Beaverton. Abundant throughout the western part of the county.

65. **Agelaius tricolor.** TRICOLORED BLACKBIRD.—The same remarks apply to this as to the preceding.

66. **Sturnella magna neglecta.** WESTERN MEADOW LARK.—Common. Hundreds were snowed under in the blizzard last winter, and were afterwards found dead, in little companies of six or eight.

67. **Scolecophagus cyanocephalus.** BREWER'S BLACKBIRD.—Abundant summer resident. A few are seen throughout the winter; breeds in the deep grass and weeds along the ditch banks. In the fall of 1884 a pair of partial albinos were shot in company. They were alone, rather an unusual occurrence at this season, and the only Blackbirds seen for some time. During the spring of 1885, while this species was migrating, albinos were very plenty. At one time two were seen in a flock of a

dozen, one much spotted with white, the other with two or three white feathers in the centre of the tail. Again, in a flock of fifteen, four of these abnormal plumaged birds were found, ranging from one with a few white blotches on the breast and back, to one nearly half white. Another was seen with two broad white bars on each wing; another with white feathers in each side of the tail, like a Junco; while another had a white spot on the back and a white ring around each eye, giving it a very wise and Owl-like expression. I think it would be difficult to shoot one hundred specimens of *Scolecophagus* at random during the spring migration without finding one or more with white markings. It is worthy of note, however, that all of these birds disappeared before the beginning of the breeding season.

68. **Coccothraustes vespertina.** EVENING GROSBEAK.—Very common in winter. In Portland I saw mounted specimens, and was told that they were a native of Japan, having been imported to this country some time ago. Upon inquiry I found that the story was well circulated and generally believed; however, some assured me that the bird was brought from Australia and not from Japan. During the winter *C. vespertina* is common everywhere, but as it keeps well in the tops of the pines and firs, it is not usually noticed. In Portland, however, their habits differ, large flocks being seen feeding in the maples and picking up the fallen seeds at the very feet of the passing crowd. I am satisfied that several pairs bred near Beaverton this spring, but I was unable to find the exact locality.

69. **Carpodacus purpureus californicus.** CALIFORNIA PURPLE FINCH.—Abundant until December; appears again the last of January.

70. **Loxia curvirostra minor.** RED CROSSBILL.—Rare during migrations; more common in the coast mountains and in the western part of the county.

71. **Loxia leucoptera.** WHITE-WINGED CROSSBILL.—Very rare; two or three seen during the storm of December last.

72. **Spinus tristis.** AMERICAN GOLDFINCH.—Abundant summer resident. In the fall flocks of thousands were seen feeding on the seeds of the thistle.

73. **Spinus pinus.** PINE FINCH.—Common during migrations; flying about in noisy, restless flocks, often in company with the preceding.

74. **Passerculus sandwichensis alaudinus.** WESTERN SAVANNA SPARROW.—Rare. Found only during migrations.

75. **Poocætes gramineus confinis.** WESTERN VESPER SPARROW. 'Ground Bird,' 'Gray Bird,' of the natives.—Abundant summer resident, found everywhere in the open country.

76. **Zonotrichia gambeli.** GAMBEL'S WHITE-CROWNED SPARROW.—Abundant summer resident. Arrives in full song, and is heard almost constantly during the breeding season, often after dark. After the first brood leaves the nest the White-crowns disappear from about Beaverton, and become more common on the hills and higher lands, where a second, and often a third, brood is raised.

77. **Zonotrichia coronata.** GOLDEN-CROWNED SPARROW.—Rather common during migrations; stopping only for a few days. Very shy and

silent during their stay. Arrives nearly or quite two weeks later than the preceding.

78. **Spizella socialis arizonæ.** ARIZONA CHIPPING SPARROW.—Common summer resident. Song and habits almost identical with those of the eastern bird.

79. **Junco hyemalis oregonus.** OREGON JUNCO.—Abundant throughout the year. Breeds everywhere, raising three and often four broods. In March, 1884, an almost pure albino was seen near Beaverton. He escaped me, however, and although he stayed in that locality until June, I was unable to secure him. In May, 1885, however, I saw him from a passing railway train, and on my return next day, with a gun, he was easily secured, and proved to be a male that had evidently raised a brood in the vicinity. His mate was in normal plumage, and several young birds seen near by, and supposed to be his family, were also normal. A very careful examination and dissection of the male failed to discover anything wrong with his health, and no 'tape worms'* could be found. Upon inquiry among the farmers in the vicinity I found that the bird was well known to them, and that it had been seen for at least two seasons before it came under my notice. They told me that it had always nested in the same place—a clay bank covered by a few low bushes. Here it was always to be found until about the last of June, when it disappeared, and would not be seen again until the following spring. The eggs of this species vary greatly, some being very heavily marked, while others are almost spotless.

80. **Melospiza fasciata guttata.** RUSTY SONG SPARROW.—Very common resident, though less abundant in winter. A nest of this species, taken in May, contained three eggs of *Melospiza* and one of *Pipilo maculatus oregonus*.

81. **Melospiza fasciata rufina.** SOOTY SONG SPARROW.—Not common; a few seen in winter.

82. **Passerella iliaca unalashkensis.** TOWNSEND'S SPARROW.—Not common; a few are seen in spring and fall, and occasionally during winter. Very shy, keeping in the tangled thickets of rose bushes. Specimens taken in Southwestern Oregon are of a darker and more sooty cast than any I have seen from other localities.

83. **Pipilo maculatus oregonus.** OREGON TOWHEE.—Common resident; rather rare in same locality in winter. Nests in old brush piles and very dense thickets. An egg was found in a nest of *Melospiza guttata*.

84. **Passerina amœna.** LAZULI FINCH.—Not common. Seen in spring and fall; rarely in summer.

85. **Piranga ludoviciana.** WESTERN TANAGER.—Common summer resident. Frequents the deepest evergreen forests, but it is often found in the deciduous growth. Its song is indistinguishable from that of the Scarlet Tanager (*P. erythromelas*).

86. **Progne subis.** PURPLE MARTIN.—One seen in May.

87. **Petrochelidon lunifrons.** CLIFF SWALLOW.—Abundant summer

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* See Auk, Vol. II, No. I, p. 113.

resident. A colony of about two hundred built at Beaverton this spring, for the first time in the memory of its inhabitants.

88. **Hirundo erythrogaster.** BARN SWALLOW.—Rather rare; seen for a few days only in spring and fall.

89. **Tachycineta bicolor.** WHITE-BELLIED SWALLOW. — Abundant summer resident. Builds in hollow stubs and Woodpecker holes.

90. **Tachycineta thalassina.** VIOLET-GREEN SWALLOW.—Very common migrant. A few stay to breed, nesting in colonies in hollow stubs.

91. **Ampelis cedrorum.** CEDAR WAXWING.—Common throughout the summer.

92. **Vireo gilvus.** WARBLING VIREO.—Common summer resident. Frequents deciduous trees, and is often seen darting out after passing insects. Very restless, and sings almost constantly.

93. **Vireo solitarius cassini.** CASSIN'S VIREO.—Summer resident; more common than the preceding. Frequents the coniferous growth, but is often found in the alders and aspens.

In variety and richness of notes Cassin's Vireo is not surpassed, if equaled by any of our Vireos. Its clear, metallic notes ring through our forests from earliest dawn until dark. Nests were found in oaks and alders. Both nests and eggs resemble those of *Vireo gilvus*.

94. **Helminthopila celata lutescens.** LUTESCENT WARBLER.—Common summer resident. Nests on the ground, and is very shy when in the vicinity of the nest. During the migrations it frequents the tops of low shrubbery and the smaller trees, whence it is often seen darting out after passing insects. More frequently on the ground during the breeding season. Its song, though short and simple, is quite pleasing, consisting of a few sweet trills and ending with a rising inflection.

95. **Dendroica æstiva.** YELLOW WARBLER.—An abundant summer resident. Frequents the deciduous trees more than the following, and is less on the ground.

96. **Dendroica auduboni.** AUDUBON'S WARBLER. — Very common migrant; a few breed in the more elevated parts of the county. The Audubon is the first Warbler to arrive here in the spring, and is first seen about March 1, usually coming in pairs or a company of pairs. Its habits are nearly identical with those of the common Yellow-rump.

97. **Dendroica townsendi.** TOWNSEND'S WARBLER.—Rare. One seen in the spring of 1884.

98. **Dendroica nigrescens.** BLACK-THROATED GRAY WARBLER.—A quite common summer resident. Frequents the thick firs, seldom being seen in deciduous trees until the breeding season. Of its nesting habits I could learn next to nothing, although for days I followed birds that I was sure were building. At this time they are quite shy and retired in their habits, frequenting the younger growth of firs, and thickets of alder and willow, so dense that one can scarcely see a rod in advance. It often requires considerable patience and perseverance to secure this little sylph. I have followed one for as much as half-a-mile through the thickets while, like a will-o'-the-wisp, it led me on, fluttering

occasionally into sight for an instant, a few feet ahead, and the next minute uttering its song as far in the rear.

99. **Geothlypis macgillivrayi.** MACGILLIVRAY'S WARBLER.—Common summer resident; frequents the low, tangled shrubbery, and is much on the ground. Quite shy in its habits. Its alarm note is a single *chat*, given with considerable spirit by both sexes, when disturbed in the vicinity of the nest. A nest, found June 1, was in a small hazel one foot from the ground, composed of dry grass and lined with finer grass and a few horse hairs. It contained four young about five days old.

100. **Geothlypis trichas occidentalis.** WESTERN YELLOW-THROAT.—Very common summer resident. Pacific coast Yellow-throats are of a richer yellow than specimens from the Atlantic, some very fine males being of a rich orange on the throat.

101. **Icteria virens longicauda.** LONG-TAILED CHAT.—A rare summer visitor. Very retired in its habits.

102. **Sylvania pusilla pileolata.** PILEOLATED WARBLER.—Rather a rare migrant.

103. **Anthus pensilvanicus.** AMERICAN PIPIT.—Abundant for a few days during migrations. Seen in large restless flocks in company with *Otocoris alpestris leucolæma*.

104. **Salpinctes obsoletus.** ROCK WREN.—Very rare; probably a wanderer from the mountains. One taken in May, 1885.

105. **Thryothorus bewickii spilurus.** VIGORS'S WREN.—Quite common up to December 15, 1884, when the snow drove it south. Only three were seen this spring (1885).

106. **Troglodytes aëdon parkmani.** PARKMAN'S WREN.—Very common summer resident: has all the habits and appearance of the Eastern bird.

107. **Anorthura troglodytes pacificus.** WESTERN WINTER WREN.—Common winter resident. Generally found in some brush pile in the deep timber. Its song, frequently heard in December and January, is quite low, but remarkably sweet, clear, and liquid.

108. **Cistothorus palustris.** LONG-BILLED MARSH WREN.—Summer resident; not very common; in favorable localities stays until quite late.

109. **Sitta carolinensis aculeata.** SLENDER-BILLED NUTHATCH.—A not uncommon resident. Keeps well in the pines and firs, with the following.

110. **Sitta pygmæa.** PYGMY NUTHATCH.—Rather rare; a few seen in spring.

111. **Psaltriparus minimus.** BUSH-TIT.—Common resident: breeds in the thickets of ash and willow. Their beautiful pensile nests seem out of all proportion to the size of the bird.

112. **Parus atricapillus occidentalis.** OREGON CHICKADEE.—Very common resident, with all the habits of the eastern *atricapillus*.

113. **Parus rufescens.** CHESTNUT-BACKED CHICKADEE.—Common winter resident. First seen in December in company with *occidentalis*. A few lingered to breed, but disappeared as soon as the first brood was

raised. A nest was found on April 28, in a big fir stub, three feet four inches in diameter. About twelve feet from the ground was a hole, not over an inch in diameter, running horizontally three inches, then turning downward for six inches before opening out into the nest, which was of cow and rabbit hair. It contained seven eggs, with large embryos.

114. **Regulus calendula.** RUBY-CROWNED KINGLET.—Not uncommon winter resident. Usually seen in company with the two following species. The Ruby-crown of this region is darker than those taken farther east.

115. **Regulus satrapa olivaceus.** GOLDEN-CROWNED KINGLET.—Much more common than the preceding. Usually seen throughout the winter. Our cold weather of last winter, however, drove all the Kinglets south, and the few which returned were very tardy. The Golden-crowns, however, must have chosen a different route north, for only five or six were seen during the spring migration, in place of the thousands in the spring of 1884.

116. **Turdus ustulatus.** RUSSET-BACKED THRUSH.—Not uncommon summer resident. During the first week after its arrival it is very shy and silent, keeping in the darkest and deepest thickets, uttering a single *chuck* of alarm when disturbed. As their numbers increase, a few are heard singing at dusk and in the early morning; by the time they have all arrived the woods fairly ring with the clear metallic song of this and the following species. It nests in dark secluded thickets.

117. **Turdus aonalaschkæ.** DWARF HERMIT THRUSH.—Common summer resident. Arrives about April 20, with the preceding, which it closely resembles in habits and song.

118. **Merula migratoria propinqua.** WESTERN ROBIN.—Abundant nearly the entire year, only leaving for a few days in the wet season. Several having white markings were noted, and one nearly or quite pure albino was seen.

119. **Hesperocichla nævia.** VARIED ROBIN. 'Mountain Robin,' 'Swamp Robin' of the natives.—An abundant winter resident; first seen late in September. When they first arrive they are very shy and keep in the darkest recesses of the fir forests, where only the *cluck* of alarm, or an occasional call-note is heard. As their numbers increase they are seen in flocks feeding in the meadows. In December and January they were quite tame, coming about the farm-houses and orchards, feeding on frozen apples and whatever they could pick up. Specimens taken during the heavy storms last winter (1884-'85) were mere skeletons and in very ragged plumage; some taken in January were still moulting. One bird was seen with a white patch as large as a silver half-dollar between the wings. They usually leave for the north before the last of March, although a few linger into April, and show the same shy disposition as the September birds.

120. **Sialia mexicana.** CALIFORNIA BLUEBIRD.—Very common summer resident. The Bluebird is the same cheery, happy fellow here that he is everywhere. Nests in hollow stubs or dead trees, from four to one hundred feet up.

AN ORNITHOLOGICAL RECONNAISSANCE IN WESTERN NORTH CAROLINA.

BY WILLIAM BREWSTER.

(*Concluded from p. 112.*)

63. **Vireo flavifrons.** YELLOW-THROATED VIREO.—This Vireo was not met with in either Buncombe or Yancy Counties, but a few were seen about Old Fort, and in Jackson and Macon Counties it was rather common, haunting open oak woodlands from the lower valleys (Franklin) to about 4000 feet (Highlands). The song was less rich and full than at the North, but otherwise similar.

64. **Vireo noveboracensis.** WHITE-EYED VIREO.—Found only in the lower valleys, where it occurred sparingly and at rather wide intervals in thickets bordering streams.

65. **Vireo olivaceus.** RED-EYED VIREO.—Common everywhere below 4000 feet, but nowhere as abundant as at the North. The song was normal, but the single specimen taken (at Sylva, May 30) differs from any that I have ever seen in lacking the usual ashy of the head and greenish suffusion over the back, the entire upper parts being nearly concolor and of a dull smoky brown. It is possible that a good series of specimens will prove these differences to be characteristic of birds from this region.

66. **Vireo gilvus.** WARBLING VIREO.—Found only at Old Fort and along the Swannanoa River near Asheville. It was common in both localities, but especially so in the red birches, sycamores, and maples overhanging the Swannanoa, where three or four were often heard singing in adjoining trees.

67. **Mniotilta varia.** BLACK-AND-WHITE CREEPER.—Very common in hardwood forests, ranging to at least 4500 feet (near Highlands). Song normal.

68. **Helminthophila chrysoptera.** GOLDEN-WINGED WARBLER.—Common in Jackson and Macon Counties, ranging from 2000 to 4100 feet, and haunting open oak woodlands, and second growth on hillsides. In many such tracts it seemed to be the most abundant and characteristic species; in others, apparently similar in every way, it was nearly or quite wanting. The males sang in the tops of the tallest trees and were very shy; the song is precisely as at the North. I did not find the species in either Buncombe or Yancy Counties.

69. **Compsothlypis americana.** BLUE YELLOW-BACKED WARBLER.—Irregularly distributed and common nowhere. I found a few at Old Fort (McDowell County), one on the banks of the French Broad near Asheville, one at Franklin, and several between Franklin and Highlands. All these were in hardwood timber, singing in the tops of the taller trees. I saw none at Highlands, although many of the trees there were hung with *Usnea* 'moss.' In the localities where my specimens were found there was neither *Usnea* nor *Tillandsia*.

70. **Dendroica æstiva.** YELLOW WARBLER.—Abundant everywhere below 2800 feet, especially in willows and sycamores along the banks of streams. Throughout the region its song was very different from that of our northern bird and bore a much closer resemblance to the song of the Nashville Warbler, for which, indeed, I at first mistook it.

71. **Dendroica cærulescens.** BLACK-THROATED BLUE WARBLER.—I heard the first Black-throated Blue Warbler on the crest of the Cowee Mountains, but at the time supposed it to be a belated migrant. On the following day, however, others were met with at Cullasaja Falls, and along the road between that point and Highlands many were seen or heard. In the neighborhood of Highlands they were everywhere numerous, and in the extensive rhododendron swamps, literally swarming and evidently settled for the season, if not actually breeding. Mr. Boynton tells me that he regularly hears them singing in these swamps through June and July, but he has never found the nest. On the Black Mountains they were scarcely less numerous in belts of rhododendrons bordering streams at between 3200 and 4500 feet, but curiously enough none were seen above the latter elevation, although the balsam forests on the upper slopes of these mountains would seem to furnish congenial haunts.

72. **Dendroica pensylvanica.** CHESTNUT-SIDED WARBLER. — Generally distributed between 2000 and 4000 feet, but nowhere really numerous. Indeed, I rarely saw more than one or two in any single day. As in New England, they frequented wood edges and openings, especially such as were bordered by thickets of blackberry bushes or hazels. They were also found in rhododendrons. The song was perfectly normal.

73. **Dendroica blackburniæ.** BLACKBURNIAN WARBLER.—In Jackson and Macon Counties this Warbler was abundant everywhere above 3000 feet, but I heard only one in Yancy County,—on the side of the Black Mountains at 3300 feet. On the crest of the Cowee Range, and about Highlands, they were among the commonest and most conspicuous woodland birds, frequenting old oak timber interspersed with hemlocks or bordering hemlock swamps. In these evergreens they were evidently breeding, or about to breed, for the males were in full song and paired, and I noticed that each had its particular hemlock which it guarded with jealous care, driving away all other small birds that came into or near it. The song here was peculiar, but still not sufficiently so as to be unrecognizable. Several males which I shot near Highlands differ from northern specimens in having the orange of the throat duller and paler.

74. **Dendroica dominica.** YELLOW-THROATED WARBLER. — Met with only twice, near Old Fort, May 23, and at Sylva, May 30. At the former place one was heard singing; at the latter a pair were feeding full-fledged young. I shot the male and found, as I expected, that it was a typical *dominica*.

75. **Dendroica virens.** BLACK-THROATED GREEN WARBLER. — Very curiously, this species was detected only on the Black Mountains, where it was confined to the balsam forests, above 5000 feet. It was one of the most abundant and characteristic birds here, and apparently settled for the summer. The song was perfectly normal.

76. **Dendroica discolor.** PRAIRIE WARBLER.—Met with only at Old Fort, where it was common in brush-grown pastures and tracts of young second-growth on hillsides.

77. **Seiurus aurocapillus.** OVENBIRD. — The open oak woodlands, so prevalent in this region, are in every way adapted to the requirements of the Ovenbird, and throughout them it is one of the commonest and most characteristic summer birds. I did not find it above 4500 feet.

78. **Seiurus motacilla.** LARGE-BILLED WATER-THRUSH.—Only four individuals met with, two in rhododendron swamps near Highlands, the others on the banks of the Tuckaseegee River, between East La Porte and Sylva, at an elevation of only 2150 feet. One of the Highlands specimens was found at fully 4500 feet.

79. **Geothlypis formosa.** KENTUCKY WARBLER.—Generally distributed in the valleys and over the mountain sides to about 3500 feet. It was usually found in open woodland about logs or fallen tops, but also occurred in the rhododendrons. In both situations it was an uncommon, inconspicuous species, oftener heard than seen.

80. **Geothlypis trichas.** MARYLAND YELLOW-THROAT.—Rather common in the lower valleys, especially in thickets near streams or meadows Not seen above 2100 feet.

81. **Icteria virens.** YELLOW-BREASTED CHAT.—The Chat was abundant everywhere in the valleys and over the lower slopes of the mountains to at least 2200 feet

82. **Sylvania mitrata.** HOODED WARBLER.—Found sparingly but very generally in rhododendron thickets along streams, ranging to at least 3800 feet. Song normal.

83. **Sylvania canadensis.** CANADA FLYCATCHER. — Abundant from about 3000 feet nearly, or quite, to the tops of the highest mountains. Over the lower portions of its range it frequented rhododendron thickets bordering streams, above 5000 feet, the balsam forests. As its vertical distribution extends downward below the upper limits of that of *S. mitrata* the two species probably come together in places, although I saw no instances of this. At Highlands, June 1, 1885, Mr. Boynton found a nest placed "in a grassy spring-bank," and "composed chiefly of old leaf-stems and small roots, lined with fine black roots which resemble hair." It contained four perfectly fresh eggs.

84. **Setophaga ruticilla.** AMERICAN REDSTART.—I saw only a very few Redstarts—certainly less than a dozen—all in the lower valleys, and the majority among alders along streams.

85. **Mimus polyglottos.** MOCKINGBIRD. — Confined to the lower valleys, where it is uncommon and very locally distributed. I found it most numerous about Asheville, where at least three or four pairs were seen.

86. **Galeoscoptes carolinensis.** CATBIRD.—One of the most numerous and evenly distributed birds of the region, occurring almost everywhere below 4000 feet.

87. **Harporhynchus rufus.** BROWN THRASHER.—Much less common than the preceding species, but still frequently met with, especially on

brushy hillsides in the lower valleys. I did not detect it anywhere above 3000 feet, but was told that it is occasionally seen at Highlands (4000 feet).

88. **Thryothorus ludovicianus.** CAROLINA WREN.—This species was common in the valleys, and sparingly distributed over higher ground to an elevation of at least 4000 feet. It was nowhere nearly as numerous, however, as in the coast region of South Carolina.

89. **Thyothorus bewickii.** BEWICK'S WREN.—Confined almost exclusively to the towns, where it was usually one of the most abundant and conspicuous birds. It is, in fact, the 'House Wren' of this region, and in some respects is even more familiar and confiding than this better known relative. At Asheville it was breeding in such numbers that nearly every shed or other out-building harbored a pair, the male of which sang through the greater part of the day from the ridgepole or gable end of the roof. The song is sweet and exquisitely tender—one of the sweetest and tenderest strains I know. It recalls that of the Song Sparrow, but is more prolonged, varied, and expressive. This species resembles other Wrens (especially *T. ludovicianus*) in habits and motions, creeping and hopping about under eaves of buildings, and along fences, entering every hole and crevice, and appearing and disappearing like a mouse. Its slender shape and long tail give it, however, a somewhat peculiar appearance—much like that of the *Polioptilæ*. The tail is habitually carried above the line of the back, although its position and inclination are constantly changing. It is not moved in the usual jerky Wren-fashion, but rather slowly and deliberately. In a breezy situation it often seems quite beyond the bird's control, waving about with every passing puff of air.

90. **Troglodytes hiemalis.** WINTER WREN.—This species was met with only on the Black Mountains, where it was abundant throughout the balsams, from 5000 to 6000 feet, filling these lonely forests with its exquisite melody at all times of the day. The song here seemed to me even finer than at the North. Once or twice I caught a glimpse of one of the singers perched on some low stump or moss-grown rock, but to my disappointment I failed to secure a specimen.

91. **Certhia familiaris americana.** BROWN CREEPER.—Common about Highlands, and abundant in the 'balsams' on the Black Mountains, but not seen in either locality below 4000 feet. At Highlands they frequented hemlocks in the 'laurel' swamps, and girdled stumps bordering clearings. The female of a pair shot May 29 was incubating. The males were in full song everywhere, and their notes seemed to me identical with those of the northern bird. My specimens are rather browner than spring examples from New England, but in other respects similar. Mr. Boynton has taken the nest at Highlands. It was built in the usual way, behind a scale of loose bark.

92. **Sitta carolinensis.** WHITE-BELLIED NUTHATCH.—Only four seen, one at Franklin in the trees shading the main street of the village, the other three at Highlands in oak woodland.

93. **Sitta canadensis.** RED-BELLIED NUTHATCH.—In the balsams of the Black Mountains, from about 5000 feet to the top of the main ridge (6000 feet), this Nuthatch was more abundant than I have ever seen it elsewhere. Whenever I stopped to listen or look around its whining, nasal

call was sure to be one of the first sounds that came to my ears, and often three or four different birds would be heard at once. They were usually invisible—high in the tops of the matted evergreens, but I occasionally caught sight of one hanging head downward at the end of a branch, or winding up the main stem of the tree. A pair had a nest in a short dead prong near the top of a yellow birch which grew near the bridle path. I was unable to examine it, but it must have contained young, for both parent birds repeatedly entered the hole bearing food in their bills. A male shot on this mountain is indistinguishable from New England specimens.

Near Highlands, at an elevation of about 4000 feet, I found a single pair of these Nuthatches in an extensive 'laurel swamp,' shaded by giant hemlocks. They were undoubtedly breeding, although I did not succeed in finding the nest.

94. **Parus bicolor.** TUFTED TITMOUSE.—Generally distributed from the valleys to the upper edges of the hardwood forests on the mountain sides, but nowhere common.

95. **Parus atricapillus.** BLACK-CAPPED CHICKADEE.—This northern species, which, if I am not mistaken, has never been previously found south of Virginia, proved to be not uncommon in the 'balsam' belt of the Black Mountains. Its notes and habits here were precisely the same as at the North, and very different from those of *P. carolinensis*, with which it mingled along the lower borders of its range. Like most of the birds inhabiting these mountains, it was exceedingly shy, so much so indeed that I had the greatest difficulty in getting specimens. These represent two pairs, of which both females were incubating. All four differ from northern examples in being smaller, with much slenderer, more acute bills, and generally deeper, browner tints, especially on the back and sides, which are nearly as richly colored as in autumnal specimens from New England. These characteristics, if constant, should perhaps entitle the North Carolina form to subspecific recognition.

96. **Parus carolinensis.** CAROLINA CHICKADEE.—Common, and very generally distributed, ranging from the lowlands to at least 5000 feet, and probably still higher. On the Black Mountains I found it breeding sparingly along the lower edge of the balsam belt, and thus actually mingling with *P. atricapillus*. In one place a male of each species was singing in the same tree, the low plaintive *tswee-dee—tswee-dee* of the *P. carolinensis*, contrasting sharply with the ringing *te-derry* of its more northern cousin. The fact that the two occur here together and that each preserves its characteristic notes and habits, should forever settle all doubts as to their specific distinctness.

A nest found June 2 at the foot of these mountains was in a shallow cavity in the end of a fence rail by the roadside. It contained six young, fully fledged and apparently large enough to fly. They made a pretty picture—the circle of black and white heads peering out curiously at the entrance.

97. **Regulus satrapa.** GOLDEN-CRESTED KINGLET.—Throughout the sombre balsam forest on the upper slopes and ridges of the Black Moun-

tains this Kinglet was one of the most numerous and characteristic birds. The males were in full song at the time of my visit (June 1, 2), but as they kept well up in the tree-tops it was next to impossible to get a sight at one. Indeed, the single specimen which I shot cost more than an hour's persistent labor. This specimen seems to be identical with northern birds. The song, also, was quite normal.

98. **Polioptila cærulea.** BLUE-GRAY GNATCATCHER.—Seen only along the road between Webster and Franklin, and on the outskirts of the latter town, where it was common throughout an extensive tract of post-oak scrub.

99. **Turdus mustelinus.** WOOD THRUSH.—Abundant, and generally distributed, ranging from the lowest valleys to at least 4500 feet, on the mountain sides, and breeding everywhere, but most numerously in thickets of rhododendrons near streams. Two nests, each containing four fresh eggs, were found at Highlands; one, May 27, in a cornel (*Cornus florida*); the other, May 28, in a rhododendron (*Rhododendron maximum*).

100. **Turdus fuscescens.** WILSON'S THRUSH. — Abundant over the elevated plateau about Highlands, and scarcely less numerous on the Black Mountains, ranging in both localities from about 3500 to 5000 feet. Like the Wood Thrush this species haunted, by preference, rhododendron thickets along streams, and in many of these tangled retreats it was far more numerous than I have ever seen it at the North. Its call-notes were louder, sharper, and more penetrating than those of our New England bird. The song, also, was clearer, more varied, and altogether finer.

On the Black Mountains Wilson's Thrushes abounded in the dense evergreen forest of spruces and balsams at, and for a little distance above, 5000 feet. Two specimens which I shot here are somewhat larger than New England examples, and decidedly browner. Mr. Boynton has repeatedly found the nest of this species at Highlands, usually in the top of a fallen tree, sometimes on a mound surrounded by water or springy ground.

101. **Merula migratoria.** AMERICAN ROBIN. — Irregularly but very generally distributed over the region from the lowest valleys nearly, if not quite, to the summits of the highest mountains. In the low country it was seen only in or near towns, where it had all the familiar habits of our northern bird; but on the sides and tops of the mountains it occurred miles away from any house or clearing, and in the wildest possible places. It was most numerous at Highlands, and on the Black Mountains, between 4000 and 5800 feet. Throughout the entire mountain region its song and habits seemed to be perfectly normal. A female shot May 27 was laying. This and another specimen (male, May 28) are smaller than northern examples and the throat in both is nearly immaculate.

102. **Sialia sialis.** BLUEBIRD.—Common, ranging up to about 4000 feet. Although often seen in the wilder portions of this region, it evidently preferred the neighborhood of towns and houses, where, unmolested by the quarrelsome House Sparrow, it bred in boxes put up for its reception and showed all that charming familiarity and confidence which once characterized our New England Bluebird.

Species of whose occurrence during autumn or winter I obtained satisfactory proof.

1. **Podilymbus podiceps.** PIED-BILLED GREBE—At Highlands I examined the skin of one of these Grebes which had been shot the preceding autumn in a mill-pond near the town.

2. **Branta canadensis.** CANADA GOOSE.—Often seen in small numbers during the spring and autumn migrations.

3. **Porzana carolina.** CAROLINA RAIL.—Of irregular occurrence near Asheville in early autumn. One gentleman assured me that during a heavy easterly storm in September, 1883, he bagged twenty specimens in the meadows along the French Broad River.

4. **Gallinago delicata.** WILSON'S SNIPE.—This well-known game bird visits the meadows about Asheville in sufficient numbers to afford fairly good shooting. It occurs only during the spring and autumn migrations.

5. **Ardea herodias.** GREAT BLUE HERON.—Seen occasionally along the French Broad River.

6. **Ectopistes migratorius.** WILD PIGEON.—Said to occur in numbers in autumn and winter, especially when beech mast is abundant.

7. **Accipiter velox.** SHARP-SHINNED HAWK.—At Highlands I was shown the wings and tails of several specimens shot the preceding autumn.

8. **Falco sparverius.** SPARROW HAWK.—I include this Hawk on precisely the same evidence as the Sharp-shin, viz., that of the examination of some wings and tails in the possession of a gentlemanat Highlands. The species probably breeds also, but of this I have no proof.

9. **Buteo borealis.** RED-TAILED HAWK.—An adult female, very large and pale, shot by Mr. Boynton at Highlands, February 8, 1886, reaches me just in time for mention in this connection. With it Mr. Boynton also sends:

10. **Melanerpes carolinus.**—RED-BELLIED WOODPECKER.—A male shot at Highlands (4000 ft.) Feb. 6, 1886.

11. **Scolecophagus carolinus.** RUSTY GRACKLE.—One taken at Highlands, January 23, 1886. "It has been about the town all winter in company with a flock of Meadow-larks."

A LIST OF THE BIRDS OBTAINED IN VENTURA COUNTY, CALIFORNIA.

BY BARTON W. EVERMANN.

(*Concluded from p. 94.*)

101. ***Phalænoptilus nuttali.** (418.) POOR-WILL.—Summer resident; not common. During two years I secured but one specimen.

102. *Chordeiles virginianus henryi. (420 *a*.) WESTERN NIGHTHAWK.—Common migrant; a few breed.

103. Micropus melanoleucus. (425.) WHITE-THROATED SWIFT.—On February 19, 1881, while on a high *mesa* near where Santa Paula Creek enters the valley, I saw perhaps a score of White-throated Swifts circling high in air overhead. Toward evening they came lower down and I succeeded in getting three fine specimens, two females and one male. I saw the bird on a few other occasions, but never secured any other specimens.

104. *Trochilus alexandri. (429.) BLACK-CHINNED HUMMINGBIRD.—Rather common summer resident.

105. *Trochilus costæ. (430.) COSTA'S HUMMINGBIRD. — Summer resident, rare. I have but one specimen obtained in the county.

106. *Trochilus annæ. (431.) ANNA'S HUMMINGBIRD.—A summer resident; more common than either of the preceding.

107. *Trochilus rufus. (433.) RUFOUS HUMMINGBIRD.—This I consider the most abundant species of the Hummers found in the county. It is resident, except for a few weeks in midwinter. I found it very common in April and May in the thickets near the mouth of the Santa Clara River.

Allen's Hummingbird (*Trochilus alleni*) (434) likely occurs in the county, but as I never identified it I do not include it in this list.

108. *Tyrannus verticalis. (447.) WESTERN KINGBIRD.—A rather common summer resident, arriving last week in March. Full sets of eggs may be found by May 1.

109. *Tyrannus vociferans. (448.) CASSIN'S KINGBIRD. — Summer resident; more common than *verticalis*. Breeds perhaps a little earlier. The eggs of these two species can hardly be distinguished with certainty, hence the birds should be identified before taking the eggs.

110. *Myiarchus cinerascens. (454.) ASH-THROATED FLYCATCHER.—A summer resident; arrives about the middle of April. Not very common.

111. Sayornis saya. (457.) SAY'S PHŒBE.—A winter resident; not common. I think a few remain to breed, though I never found its nest.

112. *Sayornis nigricans. (458.) BLACK PHŒBE.—A common resident throughout the year. Nests as early as April 1.

113. *Contopus richardsoni. (462.) WESTERN WOOD PEWEE.—This species is a summer resident, but not common. I have two specimens secured in Ventura County.

114. *Empidonax hammondi. (468.) HAMMOND'S FLYCATCHER.—Summer resident; not common. I have one specimen obtained at Santa Paula, April 10.

115. *Empidonax obscurus. (469.) WRIGHT'S FLYCATCHER.—I never identified this species as a resident of Ventura County. The only reason why I include it is based upon a set of four eggs which were brought me by a boy at Santa Paula, and which I refer to this species. In color the eggs are a pure white, unspotted, and measure .72 × .60, .73 × .61, .73 × .60.

116. **Otocoris alpestris rubea.** (474 *f.*) RUDDY SHORE LARK.—An abundant winter resident, often seen in very large flocks. I do not know that any breed in the county. I have seen several specimens taken in the county that differed very little if any from typical *alpestris*.

117. ***Corvus americanus.** (488.) AMERICAN CROW.—Common resident.

118. ***Corvus caurinus.** (489.) NORTHWEST CROW.—An abundant resident.

119. ***Pica nuttalli.** (476.) YELLOW-BILLED MAGPIE.—This noisy bird is resident in the county and abundant in suitable places. They are most likely to be found in any cañon where sheep or other stock are herded. In Wheeler Cañon, near Santa Paula, I always found them abundant. On April 2, 1881, I obtained over sixty eggs from nests in this cañon.

120. ***Cyanocitta stelleri frontalis.** (478 *a.*) BLUE-FRONTED JAY.—Resident in the mountains among the evergreens. I never saw this species in the county except near the head of Santa Paula Creek.

121. ***Aphelocoma californica.** (481.) CALIFORNIA JAY.—This Jay is one of the most common and generally distributed birds of the county. It is resident, and begins nesting as early as the first week in March.

122. **Xanthocephalus xanthocephalus.** (497.) YELLOW-HEADED BLACKBIRD.—Abundant winter resident. Most frequently seen in early morning about where hogs are fed. I never found its nest, but think it breeds in the marshes near the coast.

123. ***Agelaius gubernator.** (499.) BICOLORED BLACKBIRD.—Common; resident.

124. ***Agelaius tricolor.** (500.) TRICOLORED BLACKBIRD.—An abundant resident.

125. ***Sturnella magna neglecta.** (501 *b.*) WESTERN MEADOW LARK.—Abundant in winter; a few remain to breed.

126. ***Icterus cucullatus nelsoni.** (585 *a.*) ARIZONA HOODED ORIOLE.—This handsome bird is a common summer resident, arriving about the first of April. I have traced it as far north as Santa Barbara. It has never before been recorded north of Los Angeles, I believe.

127. ***Icterus bullocki.** (508.) BULLOCK'S ORIOLE.—Summer resident; somewhat more common than the Hooded. Arrives last week in March.

128. ***Scolecophagus cyanocephalus.** (510.) BREWER'S BLACKBIRD.—One of the most abundant residents. Nests usually in the live-oaks near dwellings.

129. **Carpodacus purpureus californicus.** (517 *a.*) CALIFORNIA PURPLE FINCH.—A rare winter visitant.

130. ***Carpodacus frontalis rhodocolpus.** (519 *a.*) CRIMSON HOUSE FINCH.—Resident. Perhaps the most abundant bird of the county. Nests anywhere and everywhere,—in porches, old cans, in holes or on limbs of trees, in sides of haystacks, and even in the meshes of the nests of Crows and the larger Hawks. I have found its nest in all these various positions. I have the nest of a Bullock's Oriole inside of which is a House Finch's nest. It contained a full set of eggs when found.

This little bird is much like the English Sparrow now devastating thi country, and is in very bad repute among fruit men, who regard it as their worst enemy among the birds.

131. *Spinus tristis. (529.) AMERICAN GOLDFINCH. -- Common. Resident throughout the year.

132. *Spinus psaltria. (530.) ARKANSAS GOLDFINCH. —Not common. Resident from April to October.

133. *Spinus lawrencei. (531.) LAWRENCE'S GOLDFINCH.—Common summer resident. Probably the most abundant representative of the genus. Its eggs are readily distinguishable from those of the two preceding by being pure white, while the others are light green, or greenish white.

134. *Ammodramus sandwichensis alaudinus. (542 *b*.) WESTERN SAVANNA SPARROW.—Resident in old fields and meadows. Not common.

135. *Ammodramus beldingi. (543.) BELDING'S MARSH SPARROW. —Resident; frequent near the coast.

136. Poocætes gramineus confinis. (540 *a*.) WESTERN VESPER SPARROW.—Resident? Not common.

137. *Chondestes grammacus strigatus. (552 *a*.) WESTERN LARK SPARROW.—Common resident. Scarcely distinguishable from the eastern form.

138. Zonotrichia gambeli. (556.) GAMBEL'S SPARROW.—An abundant winter resident.

139. Zonotrichia coronata. (557.) GOLDEN-CROWNED SPARROW.— Winter resident; frequent in the foothills and mountains; seldom seen in the valleys.

140. * Spizella socialis arizonæ. (560 *a*.) WESTERN CHIPPING SPARROW.—Summer resident. Rare.

141. Junco hyemalis oregonus. (567 *a*.) OREGON JUNCO.—Rare winter resident. Seen oftenest high up in the mountains.

142. Amphispiza belli. (574.) BELL'S SPARROW.—A rare winter resident among the hills. A pair of fine specimens were gotten October 30, in the mountains near Santa Paula.

143. Peucæa ruficeps. (580.) RUFOUS-CROWNED SPARROW.—A rather common resident, but found only among the mountains.

144. * Melospiza fasciata heermanni. (581 *c*.) HEERMANN'S SONG SPARROW.—Resident; not very common.

145. * Melospiza fasciata samuelis. (581 *d*.) SAMUELS'S SONG SPARROW.—Resident; common.

146. * Melospiza fasciata guttata. (581 *e*.) RUSTY SONG SPARROW.— Resident. Rare.

147. * Pipilo maculatus megalonyx. (588 *a*.) SPURRED TOWHEE.— Resident. Common.

148. * Pipilo fuscus crissalis. (591 *b*.) CALIFORNIA BROWN TOWHEE. —Resident. One of the most abundant and best known birds.

149. * Habia melanocephala. (596.) BLACK-HEADED GROSBEAK.— Summer resident; common. Arrives about April 23. A sweet and pleasing songster.

150. **Guiraca cærulea.** (597.) BLUE GROSBEAK.—Rare. Perhaps a summer resident, but I have never seen it except in the spring.

151. *** Passerina amœna.** (599.) LAZULI BUNTING.—This beautiful little bird is rather common as a summer resident.

152. **Piranga ludoviciana.** (607.) WESTERN TANAGER.—A summer resident; not common. It doubtless breeds in the county, although I never succeeded in finding its nest. Arrives from the south about the 23d of April.

153. *** Progne subis.** (611.) PURPLE MARTIN. — Summer resident; moderately common, nesting usually in holes in trees. It does not seem to have adopted, to any great extent, the custom of nesting in boxes, so common with this species 'back in the States.'

154. *** Petrochelidon lunifrons.** (612.) CLIFF SWALLOW.—An abundant summer resident. In 1881, a colony of more than a hundred pairs nested in a shed in Santa Paula. The nests were fastened to the rafters, much after the manner of the Barn Swallow. Many horse-hairs were plastered into the nests and these often caused the death of the builders. I took from this shed some six or eight dead birds which I found hanging about the nests, they having gotten entangled in the hairs.

155. *** Chelidon erythrogaster.** (613.) BARN SWALLOW.—Summer resident, but not common.

156. *** Tachycineta bicolor.** (614.) TREE SWALLOW. — Summer resident, abundant. Many breed in holes in the willows near the mouth of the Santa Clara River.

157. ***Tachycineta thalassina.** (615.) VIOLET-GREEN SWALLOW.—This beautiful Swallow is rather common during the spring migrations. A few remain to breed.

158. ***Clivicola riparia.** (616.) BANK SWALLOW.—Summer resident; locally abundant.

159. ***Stelgidopteryx serripennis.** (617.) ROUGH-WINGED SWALLOW.—Perhaps a common summer resident, but usually confounded with the preceding.

160. **Ampelis cedrorum.** (619.) CEDAR WAXWING.—A frequent winter visitant. Often seen in flocks of six to twenty about the pepper-trees, upon the berries of which they feed.

161. ***Phainopepla nitens.** (620.) PHAINOPEPLA.—This is to me one of the most interesting of the birds found in this part of the State. On October 15, 1879, I first met with this species,—a young male which I found in the valley near Santa Paula. While collecting Gambel's Sparrows and Spurred Towhees along a brush-fence I observed this bird flying from one stake to another, darting out frequently after some passing insect. I saw no others until early in the following May, when I met with a flock of a dozen or more in Santa Paula Cañon. They were feeding upon certain insects then common about the elder and sumac bushes which grow plentifully in that part of the cañon. I did not observe them again until August (I was unable to visit the cañon during the summer), when I again found them in small flocks feeding upon the berries of the choke-cherry. Here they remained until late in October, when they migrated southward, to return again about the middle of April. On

May 4 a nest was found, saddled near the end of a horizontal limb of a live-oak which stood in a pasture in the valley, but near the mouth of Santa Paula Cañon. This nest contained *three* fresh eggs, which measured .90 × .64, .92 × .62, and .89 × .62. Other nests were found May 12, 13, 17, and 19, and June 2. Of the seven nests found by me only one was out in the valley, the others all being in Santa Paula Cañon. All of these nests were in live-oaks, but I have since been informed by Mr. Fred. Corey of Santa Paula, that he has recently found them in pepper-trees, blue-gums, and elders. From these seven nests twenty eggs were obtained, *three* being the number in each clutch except one, which contained but two. In Arizona, Capt. Bendire has found many nests of this bird, but with never more than two eggs in a set, and it was not known that more than two eggs to the set were ever laid until these nests were found by me.* The average measurements of eighteen eggs are .925 × .652, and thus somewhat larger than those of Arizona specimens.

In the 'Ornithologist and Oölogist,' Vol. VII, p. 179, I speak of the song of this bird, which I have often heard at nightfall in the cañon above mentioned. This song is sweet and plaintive, agreeing essentially with the description of Dr. J. G. Cooper and Dr. Coues, who seem to be the only observers who have hitherto been willing to credit the Phainopepla with any ability as a bird of song.

Santa Paula Cañon seems to be the favorite ground in this county for this bird; only in three other places in the county have I seen it. These are (1) a few individuals in the Santa Clara Valley about Santa Paula, (2) several in the beautiful Ojai Valley, seven to ten miles from Santa Paula, and (3) among the gnarled and moss-grown oaks on the Cacitas Pass, between San Buenaventura and Santa Barbara, where I saw a number in the month of June, but did not have leisure to search for nests.

162. *Lanius ludovicianus excubitorides. (622 *a*.) WHITE-RUMPED SHRIKE.—A common resident. This bird is often mistaken for the Mockingbird by the common people, who wonder why the pets they have reared with such care show no inclination to sing.

163. *Vireo gilvus. (627.) WARBLING VIREO. — Summer resident, but not common.

164. Vireo huttoni. (632.) HUTTON'S VIREO.—Not common. Probably breeds in the county.

165. Vireo bellii pusillus. (633 *a*.) LEAST VIREO.—I am not sure that I ever saw this bird, but think I saw a few among the oaks near Si-Sa Cañon in January.

166. Dendroica æstiva. (652.) YELLOW WARBLER. — A common migrant. Some may remain to breed, but I do not know that its nest has ever been found in the county.

167. Dendroica auduboni. (656.) AUDUBON'S WARBLER.—An abundant winter resident. This is by far the most common species of the family found on the coast.

[*On this point see also W. E. D. Scott, Auk, Vol. II, pp. 242-246, especially the last paragraph of p. 246.—EDD.]

168. Dendroica graciæ. (664.) GRACE'S WARBLER.—I never saw but one specimen of this beautiful Warbler,—a male in fine plumage which I shot from a cottonwood tree near Santa Paula, May 3, 1881.

169. Dendroica nigrescens. (665.) BLACK-THROATED GRAY WARBLER.

170. Dendroica occidentalis. (669.) HERMIT WARBLER.—I never secured specimens of either of these two rare Warblers, but I am confident I have seen them both in the county in April.

171. Geothlypis macgillivrayi. (680.) MACGILLIVRAY'S WARBLER.—Migrant. Not common.

172. *Geothlypis trichas occidentalis. (681 *a*.) WESTERN YELLOW-THROAT.—A common resident, nesting in the grass or tules about low marshy places.

173. *Icteria virens longicauda. (683 *a*.) LONG-TAILED CHAT.—A common summer resident. A very eccentric bird in more ways than one. Often sings at night.

174. *Sylvania pusilla pileolata. (685 *a*.) PILEOLATED WARBLER.—Common summer resident in suitable places. Arrives about the first week in April. I found it abundant in the willows near the mouths of the Santa Clara and San Buenaventura Rivers, where I secured its nest and eggs.

175. Anthus pensilvanicus. (697.) AMERICAN PIPIT.—An occasional winter visitant.

176. *Cinclus mexicanus. (701.) AMERICAN DIPPER.—Frequent along the mountain streams. One of the chief friends of the mountain camper.

177. Oroscoptes montanus. (702.) SAGE THRASHER.—A rare migrant. One specimen obtained March 12, 1881, on the Rocky Flat above Santa Paula.

178. *Mimus polyglottos. (703.) MOCKINGBIRD.—A common resident. The most renowned of our singing Thrushes. It may often be heard singing at any hour of the night.

179. *Harporhynchus redivivus. (710.) CALIFORNIAN THRASHER.—A common resident and noted songster. May be known by its plain brown color and long decurved bill. Nests as early as February 21.

180. *Campylorhynchus brunneicapillus. (713.) CACTUS WREN.—A common summer resident where cacti are abundant.

181. *Salpinctes obsoletus. (715.) ROCK WREN.—Rare. Perhaps resident in the rocky cañons of the county.

182. *Catherpes mexicanus conspersus. (717 *a*.) CAÑON WREN.—Frequent in the higher and rocky cañons, where it is probably resident.

183. *Thryothorus bewickii spilurus. (719 *a*.) VIGORS'S WREN.—Rather common locally, but rare about Santa Paula. Resident.

184. *Troglodytes aëdon parkmani. (721 *a*.) PARKMAN'S WREN.—An abundant resident throughout the county. Nests in knot holes, hollow limbs, old tin cans, coat sleeves that chance to be hanging in accessible places,—anywhere that happens to strike their fancy.

185. **Sitta carolinensis aculeata.** (727 *a*.) SLENDER-BILLED NUTHATCH.—A rare winter visitant.

186. ***Parus inornatus.** (733.) PLAIN TITMOUSE.—Common resident,—most frequent among clumps of live-oaks.

187. **Parus atricapillus occidentalis.** (735 *a*.) OREGON CHICKADEE.—A rare winter resident.

188. ***Chamæa fasciata.** (742.) WREN-TIT.—Rather common resident. Frequents sage-brush and other chaparral.

189. ***Psaltriparus minimus.** (743.) LEAST TIT.—A rather common resident; found in small flocks of from six to ten in winter. Breeds early, building a long pensile nest, which it usually attaches to the limb of a live-oak. The nest varies much in length, ranging from 4 to 22 inches in extreme length. (See Gentry's 'Nests and Eggs of Birds of the United States,' 131, 1882.)

190. **Regulus satrapa olivaceus.** (748 *a*.) WESTERN GOLDEN-CROWNED KINGLET.—With the preceding, a rare winter resident.

191. **Regulus calendula.** (749.) RUBY-CROWNED KINGLET.—I often met with this diminutive bird among the oaks of the foothills, but only in winter. I do not know that I ever saw it in the valley or larger cañons.

192. ***Polioptila cærulea.** (751.) BLUE-GRAY GNATCATCHER.—This little bird is a moderately common resident, nesting usually in the live-oaks, about the middle of May.

193. ***Polioptila californica.** (753.) BLACK-TAILED GNATCATCHER.—Not so common as the preceding. Resident.

194. **Myadestes townsendii.** (754.) TOWNSEND'S SOLITAIRE.—A very rare migrant. I saw it once or twice in the spring of 1881.

195. **Turdus ustulatus.** (758.) RUSSET-BACKED THRUSH.—A spring and fall migrant. Not common.

196. **Turdus aonalaschkæ.** (759.) DWARF HERMIT THRUSH.—A migrant with the preceding. Perhaps not so common.

197. **Merula migratoria propinqua.** (761 *a*.) WESTERN ROBIN.—An abundant winter resident.

198. **Hesperocichla nævia.** (763.) VARIED THRUSH.—A rare winter visitant; seen only on one occasion.

199. ***Sialia mexicana.** (767.) WESTERN BLUEBIRD.—This bird is a common resident, but seems to lack some of those characteristics which make our eastern species so great a favorite. It is but rarely seen about our dwellings, but stays in more secluded retreats. Boxes which, raised on poles in the garden or about the barn, so readily tempt the eastern cousin, have no charms for our wild western bird. But time, the civilizer, will doubtless work a reform in this bird, and then, instead of confining itself to the oak-grown foothills in winter, and to the cañons and remoter parts of the valleys in summer, it will learn that we are its friends, and will come and build its nest in the hollow limb of the tree by the house, and in the box raised from the garden fence.

200. **Sialia arctica.** (768.) MOUNTAIN BLUEBIRD.—A rare winter visitant. A single individual was seen in December, near Saticoy.

THE BIRDS OF THE WEST INDIES, INCLUDING THE BAHAMA ISLANDS, THE GREATER AND THE LESSER ANTILLES, EXCEPTING THE ISLANDS OF TOBAGO AND TRINIDAD.

BY CHARLES B. CORY.

[*Continued from p. 59.*]

FAMILY VIREONIDÆ.

GENUS **Vireo** VIEILL.

Vireo VIEILLOT, Ois. Am. Sept. I, p. 83 (1807).

Vireo modestus SCL.

Vireo noveboracensis GOSSE, Bds. Jam. p. 192 (1847).

Vireo modestus SCL. P. Z. S. 1860, p. 462.—ALBRECHT, J. f. O. 1862, p. 194.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 294.—BAIRD, Rev. Am. Bds. p. 362 (1864).—SCL. & SALV. Nom. Avium Neotr. p. 12 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 106 (1881).—GADOW, Cat. Bds. Brit. Mus. VIII, p. 303 (1883).—CORY, List Bds. W. I. p. 10 (1885).

Vireonella modestus GRAY, Handl. Bds. I, p. 382 (1869).

SP. CHAR. *Male:*—Upper plumage dull olive green; throat pale; belly dull yellowish brown; primaries and secondaries brown, edged with dull greenish on the outer webs; coverts edged with dull yellowish white, forming an imperfect wing-band; tail-feathers narrowly edged with olive green.

The sexes are similar.

Length (skin), 4.50; wing, 2.40; tail, 2; tarsus, .65.

HABITAT. Jamaica.

Vireo latimeri BAIRD.

Vireo latimeri BAIRD, Rev. Am. Bds. p. 364 (1864).—BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 252 (1866).—SCL. & SALV. Nom. Avium Neotr. p. 12 (1873).—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 135 (1878); *ib.* J. f. O. 1878, p. 158.—GADOW, Cat. Bds. Brit. Mus. VIII, p. 304 (1883).—CORY, List Bds. W. I. p. 10 (1885).

Vireonella latimeri GRAY, Handl. Bds. I, p. 382 (1869).

SP. CHAR. *Male:*—Top of head grayish brown; back olive green; underparts showing throat dull white, shading into bright yellow on the breast and belly; wings and tail brown, feathers edged with pale greenish.

Length (skin), 4.25; wing, 2.25; tail, 1.75; tarsus, .75.

HABITAT. Porto Rico.

Vireo crassirostris (BRYANT).

Lanivireo crassirostris BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 112 (1859).—CORY, Bds. Bahama I. p. 83 (1880).

Vireo crassirostris BAIRD, Rev. Am. Bds. p. 368 (1864).—SCL. & SALV. Nom. Avium Neotr. p. 12 (1873).—GADOW, Cat. Bds. Brit. Mus. VIII, p. 300 (1883).—CORY, List Bds. W. I. p. 10 (1885).

Vireonella crassirostris GRAY, Handl. Bds. I, p. 382 (1869).

SP. CHAR. *Male:*—Above yellowish olive; a streak of olive from the nostril, encircling the eye; underparts yellowish; wings and tail brown, the feathers edged with greenish, the former showing two white bands.

Length, 5; wing, 2.40; tail, 1.90; tarsus, .84; bill, .40.

HABITAT. Bahamas.

This species is nearly allied to *V. noveboracensis*, but differs from it in being slightly larger, and in having the entire underparts an almost uniform color—pale yellow, or yellowish white.

Vireo noveboracensis (GMEL.).

Muscicapa noveboracensis GMEL. Syst. Nat. I, p. 947 (1788).

Vireo noveboracensis GUNDL. J. f. O. 1855, p. 469 (Cuba); *ib.* 1861, p. 404 (Cuba); *ib.* 1872, p. 484 (Cuba).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).—GADOW, Cat. Bds. Brit. Mus. VIII, p. 300 (1883).—CORY, List Bds. W. I. p. 10 (1885).

Vireo (*Lanivireo*) *noveboracensis* GUNDL. J. f. O. 1861, p. 324 (Cuba).

Accidental in Cuba.

Vireo gundlachi LEMB.

Vireo gundlachi LEMB. Aves Cuba, p. 29 (1850).—CAB. J. f. O. 1855, p. 468.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 228 (1865).—SCL. & SALV. Nom. Avium Neotr. p. 12 (1873).—GADOW, Cat. Bds. Brit. Mus. VIII, p. 304 (1883).—CORY, List Bds. W. I. p. 10 (1885).

Vireonella gundlachi BAIRD, Rev. Am. Bds. p. 369 (1864).—GRAY, Handl. Bds. I, p. 382 (1869).—BD. BWR. & RIDGW. Hist. N. Am. Bds. I, p. 382 (1874).

SP. CHAR.—Wings short and rounded; upper plumage grayish olive; lores and circle around the eye yellowish; underparts dull yellow; two narrow wing-bands; wings and tail brown edged with grayish olive, pale on the secondaries; quills narrowly edged on inner webs with dull white; bill dull horn color.

Length (skin), 5; wing, 2.15; tail, 2.10; tarsus, .78; bill, .43.

HABITAT. Cuba.

Vireo flavifrons VIEILL.

Vireo flavifrons VIEILL. Ois. Am. Sept. I, p. 85 (1807).—GUNDL. J. f. O. 1855, p. 468 (Cuba); *ib.* 1861, p. 404 (Cuba); *ib.* 1872, p. 403 (Cuba) —BREWER, Pr. Bost. Soc. Nat Hist. VII, p. 307 (1860) (Cuba).—CORY, List Bds. W. I. p. 10 (1885).

Accidental in Cuba.

Vireo calidris (LINN.).

Motacilla calidris LINN. Syst. Nat. I, p. 329 (1766).

Vireosylvia olivacea GOSSE, Bds. Jam. p. 194 (1847).

Vireo altiloquus GAMB. Pr. Acad. Nat. Sci Phila. 1848, p. 127.—BAIRD, Bds. N. Am. p. 354 (1858).

Vireosylvia altiloqua CASSIN. Pr. Acad. Nat. Sci. Phila. 1851, p. 152; *ib.* Pr. Acad. Nat. Sci. Phila. 1860, p. 375.—NEWTON, Ibis, 1859, p. 145. —ALBRECHT, J. f. O. 1862, p. 195.—SCL. & SALV. P. Z. S. 1864, p. 348.

Vireo altiloqua SALLÉ, P. Z. S. 1857, p. 231.

Vireosylvia calidris BAIRD, Rev. Am. Bds. p. 329 (1864).—SCL. & SALV. P. Z. S. 1875, p. 234.—LAWR. Pr. U. S. Nat. Mus. I. p. 233 (1878).—A. & E. NEWTON, Handb. Jamaica, p. 106 (1881).

Vireo calidris BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 93 (1866).—SALV. & GODM. Biol. Centr. Amer. Aves, p. 186 (1881).—GADOW, Cat. Bds. Brit. Mus. VIII, p. 293 (1883).—CORY, Bds. Haiti & San Domingo, p. 49 (1885); *ib.* List Bds. W. I. p. 10 (1885).

Phyllomanes calidris GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 168 (1878); *ib.* J. f. O. 1878, p. 158.

Vireosylvia calidris var. *dominicana* LAWR. Pr. U. S. Nat. Mus. I, p. 55 (1878).

SP. CHAR. *Male:*—Crown grayish, but showing a slight olive tinge; upper parts dull olive green; a buff superciliary line and a dusky stripe through the eye; a narrow dusky maxillary line half way down the sides of the throat; sides pale yellowish-olive; lining of wings and under tail-coverts pale yellow; tail olive.

The sexes are similar.

Length, 5.80; wing, 3.20; tail, 2.50; tarsus, .68; bill, .60.

HABITAT. Jamaica, San Domingo, and Antilles.

Vireo calidris barbatula.

Vireo gilvus D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 43 (1840) (?)
Phyllomanes barbatulus CAB. J. f. O. 1855, p. 467 (Cuba); *ib.* GUNDL. 1861, p. 324 (Cuba); *ib.* 1872, p. 401 (Cuba).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).
Vireo olivaceus THIENEM. J. f. O. 1857, p. 147 (Cuba)?
Vireosylvia altiloqua BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 113 (1859) (Bahamas).—ALBRECHT. J. f. O. 1861, p. 206 (Cuba).
Vireo calidris var. *barbatulus* BD. BWR. & RIDGW. Hist. N. Am. Bds. I, p. 36 (1874).
Vireo altiloquus var. *barbatulus* CORY, Bds. Bahama I. p. 82 (1880).
Vireo calidris barbatula CORY, List Bds. W. I. p. 10 (1885).

The North American variety of *V. calidris* occurs in the Bahama Islands, and is recorded from Cuba.

Vireo olivaceus (LINN.).

Muscicapa olivacea LINN. Syst. Nat. I, p. 327 (1766).
Vireo olivaceus BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 387 (1860) (Cuba).
Phyllomanes olivaceus GUNDL. J. f. O. 1872, p. 403 (Cuba); *ib.* 1878, p. 158 (Porto Rico); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 169 (1878) (Porto Rico).
Vireo olivacea CORY, List Bds. W. I. p. 10 (1885).

V. olivaceus is claimed to have occurred in Cuba and Porto Rico.

Vireo solitarius (WILS.).

Muscicapa solitaria WILS. Am. Orn. II. p. 43 (1810).
Vireo solitarius GUNDL. J. f. O. 1854, p. 468 (Cuba); *ib.* 1872, p. 403 (Cuba).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).—CORY, List Bds. W. I. p. 10 (1885).
Vireo (*Lanivireo*) *solitarius* GUNDL. J. f. O. 1861, p. 324 (Cuba).

Accidental in Cuba.

GENUS Laletes SCL.

Laletes SCLATER. P. Z. S. 1861. p. 72.

Laletes osburni SCL.

Laletes osburni SCL. P. Z. S. 1861, p. 72, pl. 14.—ALBRECHT, J. f. O. 1862, p. 195.—SCL. & SALV. Nom. Avium Neotr. p. 12 (1873).—A. & E.

NEWTON, Handb. Jamaica, p. 106 (1881).—GADOW, Cat. Bds. Brit. Mus. VIII, p. 313 (1883).—CORY, List Bds. W. I. p. 10 (1885).

Laletes osburnii BAIRD, Rev. Am. Bds. p. 383 (1864).—GRAY, Handl. Bds. I, p. 384 (1869.)

SP. CHAR. *Male:*—Top of head grayish olive, becoming olive green on the back; underparts dull greenish yellow; wings and tail pale brown, narrowly edged with olive; under wing-coverts yellowish white.

Length (skin), 5.25; wing, 3; tail, 2.50; tarsus, .75.

HABITAT. Jamaica.

FAMILY AMPELIDÆ.

GENUS **Dulus** VIEILL.

Dulus VIEILLOT, Analyse, p. 42, No. 131, 1816.

Dulus dominicus (LINN.).

Tanagra dominica LINN. Syst. Nat. I, p. 316 (1766).—GMEL. Syst. Nat. I, p. 894 (1788).

Dulus palmarum "VIEILL. Nouv. Dict. X, p. 438 (1817)."—BP. Consp. I, p. 331 (1850).

Dulus dominicus STRICKL. Contr. Orn. p. 103 (1851).—SALLÉ, P. Z. S. 1857, p. 231.—BAIRD, Rev. Am. Bds. p. 403 (1864).—BRYANT, Pr. Bost Soc. Nat. Hist. XI, p. 92 (1866).—GRAY, Handl. Bds. I, p. 365 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 13 (1873).—CORY, Bull. Nutt. Orn. Club, VI, p. 152 (1881); *ib.* Bds. Haiti & San Domingo, p. 51 (1885); *ib.* List Bds. W. I. p. 11 (1885).—SHARPE, Cat. Bds. Brit. Mus. X, p. 218 (1885).

SP. CHAR. *Male:*—Above dull olive brown; throat dull white; feathers of the throat and underparts dark brown in the centre, broadly edged with dull rufous white, giving the bird a heavily streaked appearance; rump green; primaries and secondaries dark brown, the outer webs edged with green, the inner webs becoming very pale on the edges; tail dark brown, the feathers very narrrowly edged with green; iris orange.

The sexes are similar.

Length, 6.20; wing, 3.50; tail, 3.10; tarsus, .80; bill, .55.

HABITAT. Haiti and San Domingo.

Dulus nuchalis SWAINS.

Dulus nuchalis SWAINS. Anim. in Menag. p. 345 (1837); *ib.* Classif. Bds. II, p. 238 (1837).—STRICKL. Contr. Orn. p. 104 (1851).—BAIRD,

Rev. Am. Bds. I, p. 403 (1864).—SCL. & SALV. Nom. Avium Neotr. p. 13 (1873).—BOUC. Cat. Avium, p. 224 (1876).—CORY, List Bds. W. I. p. 11 (1885).—SHARPE, Cat. Bds. Brit. Mus. X, p. 219 (1885).

This species? is described as somewhat smaller than *Dulus dominicus*, and showing a white patch on the nape; it is otherwise similar. The exact habitat is unknown.

HABITAT. "Antilles."

GENUS **Ampelis** LINN.

Ampelis LINN. Syst. Nat. I, p. 297 (1766).

Ampelis cedrorum (VIEILL.).

Ampelis garrulus var. β. LINN. Syst. Nat. I, p. 297 (1766).

Bombycilla cedrorum VIEILL. Ois. Am. Sept. I, p. 88 (1807).—CAB. J. f. O. 1856, p. 3 (Cuba); *ib.* 1859, p. 350; GUNDL. J. f. O. 1861, p. 328 (Cuba).

Ampelis carolinensis GOSSE, Bds. Jam. p. 197 (1847).—ALBRECHT, J. f. O. 1862, p. 202 (Jamaica).

Bombycilla carolinensis BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).

Ampelis cedrorum MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 294 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 240 (1865); *ib.* J. f. O. 1872, p. 430 (Cuba).—A. & E. NEWTON, Handb. Jamaica, p. 107 (1881).—CORY, List Bds. W. I. p. 11 (1885).

Recorded from Cuba and Jamaica.

FAMILY TANAGRIDÆ.

GENUS **Euphonia** DESM.

Euphonia DESMAREST, Hist. Nat. des Tanagras, etc. p. 19 (1805).

Euphonia musica (GMEL.).

L'Organiste de S. Domingue. "BUFF. Pl. Enl. 809. fig. 1."

Pipra musica GMEL. Syst. Nat. I, p. 1004 (1788).

Tanagra musica "VIEILL. Enc. Meth. p. 787."

Euphonia musica GRAY, Gen. Bds. I. p. 367 (1846).—BP. Consp. I, p. 232 (1850).—SALLÉ, P. Z. S. 1857, p. 231.—BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 92 (1866).—SCL. & SALV. Nom. Avium Neotr. p. 17 (1873).—CORY, Bull. Nutt. Orn. Club. VI. p. 152 (1881); *ib.* Bds.

Haiti & San Domingo, p. 61 (1885); *ib.* List Bds. W. I. p. 11 (1885). —TRISTRAM, Ibis, 1884, p. 168.

Euphone musica LEMB. Aves Cuba, p. 42 (1850)?

Euphona musica GUNDL. J. f. O. 1855, p. 476.

SP. CHAR. *Male:*—Crown light blue, the color extending upon the nape, and slightly upon the sides of the neck; forehead, underparts, and rump brownish-orange; throat, cheeks, back, and tail bluish black, showing purple reflections, the purple very prominent on the back; a line of purplish black separating the blue and orange of the head and forehead; primaries dark brown, becoming pale on the edges of the inner webs; bill and feet black.

Female:—Underparts yellowish green, becoming yellowish on the throat; cheeks and line above the forehead dull black; head and nape, extending upon the sides of the neck, light blue; forehead orange brown; back, rump, and wing-coverts olive green; tail dull black, showing a tinge of green upon the feathers; primaries as in the male, except showing an almost indistinct greenish edging upon the outer webs.

Immature Male:—Forehead pale orange; top of the head grayish blue; back olive green, blotched with dark blue; rump brownish orange; wings and tail black, some of the tertiaries and coverts edged with olive green; underparts olive green, marked with brownish on the throat; dark orange, shaded with greenish, on the belly and crissum; bill and feet black.

Length, 4.40; wing, 2.60; tail, 1.80; tarsus, .50; bill, .25.

HABITAT. Haiti and San Domingo. No species of *Euphonia* has as yet been taken in Cuba.

Euphonia flavifrons (SPARRM.).

Emberiza flavifrons SPARRM. Mus. Carls. IV, No. 92 (♀).

Tanagra flavifrons LATH. Ind. Orn. Suppl. p. 47 (♀). — VIEILL. Enc. Méth. p. 775.

Euphone organiste DESM. Hist. Nat. Tan. pls. 19, 20 (1805).—VIEILL. Gal. Ois. Suppl. pl. s. n. (♂ & ♀).

Cyanophonia musica BP. Rev. Zool. 1851, p. 138.

Euphonia flavifrons SCL. P. Z. S. 1856, p. 271; SUNDEV. Oefv. K. Vet. Akad. Förh. 1869, p. 583.—SCL. & SALV. Nom. Avium Neotr. p. 17 (1873).—LAWR. Pr. U. S. Nat. Mus. I, pp. 56, 190, 269, 354, 455 (1878).—ALLEN, Bull. Nutt. Orn. Club. V, p. 166 (1880.)—CORY, List Bds. W. I. p. 11 (1885).

SP. CHAR. *Male:*—Top of head bright blue, extending to the nape; forehead bright yellow, separated from the blue by a bluish black line; back green, shading into yellow on the rump; underparts

yellowish green; cheeks bluish black; outer webs of primaries narrowly edged with green, wanting on the first; bill dark.

Female:—Similar to the male but paler in coloration, cheek-marking dark olive and much less distinct.

Length, 4.20; wing, 2.30; tail, 1.40.

HABITAT. St. Bartholemew, Martinique, Guadeloupe, Dominica, St. Vincent, Grenada, and St. Lucia.

Euphonia jamaica (LINN.).

Fringilla jamaica LINN. Syst. Nat. I, p. 323 (1766).

Euphonia jamaica GOSSE, Bds. Jam. p. 238 (1847).—BP. Consp. I, p. 233 (1850).—ALBRECHT, J. f. O. 1862, p. 196.—SCL. Cat. Am. Bds. p. 60 (1862).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 296.—SCL. & SALV. Nom. Avium Neotr. p. 18 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 104 (1881).—CORY, List Bds. W. I. p. 11 (1885).

Pyrrhuphonia jamaica BP. Rev. Zool. 1851, p. 157.—GRAY, Handl. Bds. II, p. 79 (1870).

Euphonia jamaicensis SCL. P. Z. S. 1856. p. 280; *ib.* 1861, p. 73.

SP. CHAR. *Male:*—Above slaty blue; throat and breast gray; belly, abdomen, and flanks showing bright yellow; crissum dull white; lining of wing whitish, showing yellow on the axillaries.

Female:—Head and neck bluish gray; back yellowish green; wings showing yellowish green on the outer webs; under surface dull gray; a faint greenish tinge on the flanks.

Length, 4.30; wing, 2.50; tail, 1.45.

HABITAT. Jamaica.

Euphonia sclateri BP.

Euphonia sclaterii "BP. Mus. Par."

Euphonia sclateri SUNDEV. Oefv. K. Vet. Akad. Förh. 1869, p. 596.—GRAY, Handl. Bds. II, p. 77 (1870).—SCL. & SALV. Nom. Avium Neotr. p. 17 (1873).—BOUC. Cat. Avium, p. 240 (1876).—GUNDL. J. f. O. 1874. p. 311; *ib.* 1878. p. 159; *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 191 (1878).—CORY, List Bds. W. I. p. 11 (1885).

SP. CHAR. *Male:*—Forehead dull orange yellow, bordered by a narrow band of dark blue, succeeded by light blue, which color covers the entire top of the head to the nape; cheeks and ear-coverts very dark blue, almost black; wings and tail black with bluish reflections; back bluish black, distinctly blue when held in the light; rump yellow, showing a faint brownish tinge; throat yellow; breast and rest of underparts dull orange yellow, showing a slight brownish tinge on the crissum.

Length (skin), 4; wing, 2.35; tail, 1.65; tarsus, 58; bill, .25.

HABITAT. Porto Rico.

GENUS **Calliste** BOIE.

Calliste BOIE, Isis, 1826, p. 978.

Calliste cucullata (SWAINS.).

Aglaia cucullata SWAINS. Orn. Dr. pl. 7.

Calliste cucullata GRAY, Gen. Bds. p. 366, sp. 9 (1844-46).—BP. Consp. I, p. 234 (1850); *ib.* Rev. Mag. Zool. 1851, p. 140.—SCL. Contr. Orn. 1851, p. 63; *ib.* P. Z. S. 1856, p. 253; *ib.* Mon. Call. p. 45, pl. xx (1857).—BURM. Syst. Ueb. III, p. 183.—GRAY, Handl. Bds. II, p. 68 (1870).—SCL. & SALV. Nom. Avium Neotr. p. 19 (1873).—CORY, List Bds. W. I. Revised ed. p. 11 (1886).

Calliste versicolor LAWR. Ann. N. Y Acad. Sci. I, p. 153 (1878); *ib.* Pr. U. S. Nat. Mus. I, pp. 190, 487 (1878).—CORY, List Bds. W. I. p. 11 (1885).

SP. CHAR. *Male:*—Top of the head deep chestnut red; upper plumage golden fawn color; lores black; sides of the head and ear-coverts dark green; tail black, except the two middle-feathers, which are bluish green, the rest of tail-feathers and quills black, edged with bluish green; upper tail-coverts bluish green; underparts pale bluish lilac when held in the light; feathers of the upper throat tipped with gray; under tail-coverts cinnamon.

Female:—Top of the head lighter chestnut than in the male; rest of upper parts pale green; underparts as in the male, but paler; under tail-coverts, abdomen, and flanks pale cinnamon.

Length, 6; wing, 3.30; tail, 2.50

HABITAT. St. Vincent.

GENUS **Spindalis** JARD.

Spindalis "JARD & SELBY. Ill. Orn. U. S. 1836."

Spindalis zena (LINN.).

Fringilla bahamensis BRISS. Orn. III, p. 168.

Fringilla zena LINN. Syst. Nat. I, p. 320 (1766).

Tanagra zena BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 111 (1859).

Spindalis zena SCL. P. Z. S. 1856, p. 321.—SCL. & SALV Nom. Avium Neotr. p. 21 (1873).—BOUC. Cat. Avium, p. 244 (1876).—CORY, Bds. Bahama I. p. 92 (1880); *ib.* List Bds. W. I. p. 11 (1885).

"*Spindalis pretrei* GRAY, Handl. Bds. II, p. 63 (1870)."

SP. CHAR. *Male:*—Above black; rump, and a broad band over the nape from side of the neck rufous brown, shading into an orange tinge; a superciliary stripe, and a stripe on the sides of the throat from lower mandible and chin white; cheeks black; throat black, shading into brown upon the breast, with a yellow stripe passing from the chin nearly to the brown of the breast; breast deep yellow,

shading into brown as it nears the throat; belly white, with an olive tint upon the flanks; wings and tail black, edged with white; the tertials, coverts, and base of primaries heavily marked with white; bill black, under mandible bluish; legs black.

Female:—Above olive green; below paler, shading into white on the belly; the sides and flanks pale olive green; the stripe over the eye but faintly indicated, and of an ashy color; wings and tail dark brown, with an olive tinge on the feathers, showing markings of dull white as in the male, but much narrower,

Length, 5.95; wing, 3; tail, 2.50; tarsus, .80; bill, .50.

HABITAT. Bahamas.

Spindalis pretrei (LESS.).

Tanagra pretrei LESS. Rev. Zool. 1839, p. 102.—GRAY, Gen. Bds. I, p. 365 (1846).

Tanagra multicolor et *Tanagra zena* D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 74 (1840).

"*Spindalis zena* et *pretrei* BP. Consp. I, p. 248 (1850.)

Spindalis pretrei CAB. J. f. O. 1855, p. 476.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 237 (1865); *ib.* J. f. O. 1872, p. 419.

Spindalis zena GRAY, Handl. Bds. II, p. 63 (1870).

Spindalis pretrii SCL. & SALV. Nom. Avium Neotr. p. 21 (1873).—BOUC. Cat. Avium, p. 244 (1876).—CORY. List Bds. W. I. p. 11 (1885); *ib.* Revised List Bds. W. I. p. 11 (1886).

SP. CHAR. *Male:*—Head black; a superciliary stripe reaching to the nape, and a stripe reaching from the base of the under mandible down the sides of the throat white; a narrow patch of white on the chin; throat yellow, separated from the white stripe by black; chest and cape chestnut, joining on the sides; back yellowish olive; rump chestnut; underparts grayish white, showing a yellow line down the middle of the belly; wings and tail black, the feathers marked with white; wing-coverts heavily marked with white; a broad patch of chestnut on the carpus; bill and feet dark.

Female:—The black on the head of the male, replaced by dull green; sides of the throat grayish; rump slightly tinged with yellowish; underparts olive gray, palest on the belly.

Length ♂ (skin), 5.60; wing, 3; tail, 2.25.

HABITAT. Cuba.

Spindalis multicolor (VIEILL.).

Tanagra multicolor VIEILL. Enc. Méth. p. 776.

Spindalis multicolor BP. Consp. I, p. 240 (1850).—SALLÉ, P. Z. S. 1857, p. 231.—GRAY, Handl. Bds. II, p. 63 (1870).—SCL. & SALV. Nom.

Avium Neotr. p. 21 (1873).—Bouc. Cat. Avium, p. 244 (1876).—Cory, Bull. Nutt. Orn. Club, VI, p. 152 (1881); *ib.* Bds. Haiti & San Domingo, p. 54 (1885); *ib.* List Bds. W. I. p. 11 (1885).

Tanagra (*Shizampelis*) *dominicensis* Bryant, Pr. Bost. Soc. Nat. Hist. XI, p. 92 (1866).

Sp. Char. *Male:*—Head black; a superciliary stripe from the forehead to the nape; a broad stripe of black from the bill, through the eye, to the neck; chin white, the white extending in a stripe below the black of the cheek to the neck; rest of throat black, with a yellow stripe in the centre, reaching the white of the chin; breast chestnut, shading into yellow upon the underparts and sides; a collar of bright orange yellow upon the nape, joining the white stripe of the throat; back olive; rump chestnut; abdomen and crissum white; tail brownish black, the inner webs of the two outer tail-feathers broadly marked with white; wings dark brown, with white edgings to the coverts and secondaries; lesser wing-coverts chestnut; bill and feet bluish black.

The female is dull colored; olive on the back and yellowish on the rump; underparts grayish, whitening at the vent.

Length, 6.40; wing, 3.35; tail, 3.30; tarsus, .75; bill, .40.

Habitat. Haiti and San Domingo.

Spindalis portoricensis (Bryant).

Tanagra (*Spindalis*) *portoricensis* Bryant, Pr. Bost. Soc. Nat. Hist. X, p. 252 (1866).—Sundev. Oefv. K. Vet. Akad. Förh. 1869. p. 596.

Spizampelis portoricensis Gray, Handl. Bds. II. p. 63 (1870).

Spindalis portoricensis Scl. & Salv. Nom. Avium Neotr. p. 21 (1873).—Bouc. Cat. Avium, p. 244 (1876).—Gundl. Anal. Soc. Esp. Hist. Nat. VII, p. 188 (1878).—Cory, List Bds. W. I. p. 11 (1885).

Pyrrhulagra portoricensis Gundl. J. f. O. 1874. p. 312.

Sp. Char. *Male:*—Head black; a white superciliary stripe from the nostril to the nape; a white stripe passing down the sides of the throat; a yellow stripe from the chin to the breast, where it becomes orange chestnut, separated from the white of the cheek by a black patch, which nearly reaches the bill; a narrow cape of orange chestnut; breast yellow, becoming dull white on the abdomen; back green; wing-coverts showing a patch of chestnut at the carpus; rump and flanks yellowish green.

Female:—Top of head dull olive green, shading into yellowish green on the back, brightest on the nape and rump; underparts ashy, showing dull yellow on the breast; whole under surface indistinctly striped with pale brown.

Length, 6.50; wing, 3.50; tail, 2.50.

Habitat. Porto Rico.

Spindalis nigricephala (JAMESON).

Tanagra nigricephala JAMESON, Ed. N. Phil. Journ. XIX. p. 213.—GOSSE, Ill. Bds. Jam. pl. 56.
Spindalis bilineatus JARD. & SELB. Ill. Orn. s. n. pl. 9.
Tanagra zena GOSSE, Bds. Jam. p. 231 (1847).
Tanagra zenoides DES MURS, Icon. Orn. pl. 40.
Spindalis nigricephala BP. Consp. I, p. 240 (1850).—SCL. P. Z. S. 1856, p. 230; *ib.* 1861, p. 74; *ib.* Cat. Am. Bds. p. 77 (1862).—ALBRECHT, J. f. O. 1862, p. 196.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 296.—GRAY, Handl. Bds. II, p. 63 (1870).—SCL. & SALV. Nom. Avium Neotr. p. 21 (1873).—BOUC. Cat. Avium, p. 244 (1876).—A. & E. NEWTON, Handb. Jamaica, p. 104 (1881).—CORY, List Bds. W. I. p. 11 (1885).

SP. CHAR. *Male:*—Head black; a superciliary stripe reaching from the bill to the nape, white; a stripe of white passes down the sides of the throat; chin white, not reaching the orange of the breast; back yellowish green; the central portion of the breast bright orange; rest of underparts greenish yellow, sometimes orange yellow, quills and tail black; most of the primaries, secondaries, and coverts edged with white.

Female:—Top of the head dark olive; light olive green on the back; yellowish green on the rump and upper tail-coverts; throat and cheeks gray; underparts washed with orange yellow, commencing at the upper breast and brightest on the breast and belly; sides and flanks olive green.

Length, 7; wing, 4; tail, 3.

HABITAT. Jamaica.

GENUS Piranga VIEILL.

Piranga VIEILLOT, Ois. Am. Sept. I, p. iv (1807); *ib.* Analyse, p. 32 (1816).

Piranga rubra (LINN.).

Fringilla rubra LINN. Syst. Nat. I, p. 181 (1758).
Muscicapa rubra LINN. Syst. Nat. ¶, p. 326 (1766).
Tanagra æstiva GMEL. Syst. Nat. I, p. 889 (1788).
Pyranga æstiva D'ORB. La Sagra's Hist. Nat. Cuba, Ois. p. 76 (1840).—BREWER, Pr. Bost. Soc. Nat. Hist. VII. p. 307 (1860) (Cuba).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 237 (1865); *ib.* J. f. O. 1872, p. 421 (Cuba).—CORY, List Bds. W. I. p. 11 (1885).
Phœnicosoma æstiva GUNDL. J. f. O. 1855, p. 477.

Accidental in Cuba and the Bahama Islands.

Piranga erythromelas VIEILL.

Tanagra rubra LINN. Syst. Nat. I, p. 314 (1766).
Piranga erythromelas VIEILL. Nouv. Dict. XXVIII, p. 293 (1819).
Pyranga rubra D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 78 (1840).—GOSSE, Bds. Jam. p. 235 (1847).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).—ALBRECHT, J. f. O. 1862, p. 197 (Jamaica).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 296 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 238 (1865).—A. & E. NEWTON, Handb. Jamaica, p. 104 (1881).—CORY, List Bds. W. I. p. 11 (1885).
Phœnicosoma rubra GUNDL. J. f. O. 1855, p. 477 (Cuba).

Cuba and Jamaica; it has also been taken in the Barbadoes, a specimen so labelled being in the U. S. National Museum.

GENUS Nesospingus SCL.

Nesospingus SCLATER, Ibis, 1885, p. 273.

Nesospingus speculiferus (LAWR.).

Chlorospingus speculiferus LAWR. Ibis, 1875, p. 383, pl. 9.—BOUC. Cat. Avium, p. 246 (1876).—GUNDL. J. f. O. 1878, p. 159; *ib.* 1882, p. 161; *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 190 (1878).—CORY, List Bds. W. I. p. 11 (1885).
Nesospingus speculiferus SCL. Ibis, 1885, p. 273.

SP. CHAR. *Male:*—"Entire upper plumage and sides of the head olive brown; the feathers of the crown have their centres dark brown with their margins grayish; the two central tail-feathers are coloured like the back, the others are light reddish brown and are closely crossed with nearly obsolete darker bars; quill-feathers dark brown, first, edged with gray on the outer primaries, the outer webs of the fourth, fifth, and sixth primaries are marked near their bases with white, partly concealed by the wing-coverts, the portion beyond the coverts appearing as a small triangular spot; the under plumage is grayish white, and has a somewhat mottled appearance, owing to the darker bases of the feathers showing a little; the sides are dusky, with a tinge of rufous; under tail-coverts light rufous, with dusky centres; upper mandible dark brown, the under, pale brownish white; tarsi and toes brownish black. Length, 6½ inches; wing, 3½; tail, 2¾; bill, ⅝; tarsus, ⅞." (LAWR. l. c., orig. descr.)

HABITAT. Porto Rico.

GENUS Phœnicophilus STRICKL.

Phœnicophilus "STRICKLAND, Contr. Orn. p. 104, 1861."

Phœnicophilus palmarum (LINN.).

Turdus palmarum LINN. Syst. Nat. I, p. 295 (1766).
Tachyphonus palmarum "VIEILL. N. D. d'H. N. XXXII, p. 359."
Arremon palmarum GRAY, Gen. Bds. Suppl. p. 16.—BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 92 (1866).
Dulus palmarum "BP. R. Z. 1851, p. 78."
Dulus poliocephalus "BP. R. Z. 1851, p. 78."
Phœnicophilus palmarum STRICKL. Contr. Orn. p. 104 (1851).—SCL. P. Z. S. 1856, p. 84.—GRAY. Handl. Bds. II, p. 72 (1870).—SCL. & SALV. Nom. Avium Neotr. p. 25 (1873).—CORY, Bull. Nutt. Orn. Club, VI, p. 152 (1881); *ib.* Bds. Haiti & San Domingo, p. 56 (1885); *ib.* List Bds. W. I. p. 12 (1885).—TRISTRAM. Ibis. 1884, p. 168.
Phœnicophilus palmarum BOUC. Cat. Avium, p. 247 (1876).

SP. CHAR. *Male:*—Top of the head and cheeks black; a spot of white on each side of the forehead; a white stripe touching the upper eyelid, commencing at the centre of the eye, passing backward on the head; a patch of white on the lower eyelid; a gray collar on the nape, extending upon, and joining the gray of the sides; sides slaty gray; throat white, the white extending in a narrow line down the middle of belly to the vent; the back, rump, tail, outer webs of secondaries and coverts bright yellowish green; quills brown; bill and feet bluish black.

The sexes are similar.

Length, 6.70; wing, 3.70; tail, 3; tarsus, .85; bill, .70.

HABITAT. Haiti and San Domingo.

Phœnicophilus dominicensis CORY.

Phœnicophilus dominicensis CORY, Bull. Nutt. Orn. Club, VI, p. 129 (1881); *ib.* Bds. Haiti and San Domingo, p. 58 (1885); *ib.* List Bds. W. I. p. 12 (1885).

SP. CHAR. *Male:*—Forehead and sides of the head black; a spot of white above and below the eye, and on each side of the forehead; chin white, extending in two stripes down the sides of the throat to the breast, bordering the black of the head; the rest of the head, neck and underparts grayish plumbeous: back, wing-coverts, tail and coverts, and outer edges of wing-feathers bright yellowish green; inner webs of primaries and secondaries brown, pale on the edges; legs and lower mandible dark slate color; upper mandible black; iris reddish brown.

The sexes are similar.

Length, 6.80; wing, 3.50; tail, 2.30; tarsus, .82; bill, .68.

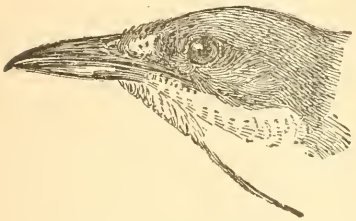
HABITAT. San Domingo.

GENUS Calyptophilus CORY.

Calyptophilus CORY, Auk, I, p. 1 (1884).

Calyptophilus frugivorus CORY.

Phœnicophilus frugivorus CORY, Journ. Bost. Zool. Soc. II, No. 4, p. 45 (1883).



Calyptophilus frugivorus CORY, Auk, I, p. 3 (1884); *ib.* Bds. Haiti and San Domingo, p. 59 (1885); *ib.* List Bds. W. I. p. 12 (1885).

SP. CHAR. *Male:*—Top of the head brown, shading into ashy on the neck behind the eye; rest of upper parts, including back and upper surface of wings and tail, brownish olive; throat white; breast white, becoming ashy upon the sides; flanks brownish olive, the olive mixing with white upon the crissum; primaries and secondaries olive brown, the inner webs edged with very pale brown; a patch of bright yellow under the base of the wing, extending upon the carpus; eye encircled by a very narrow line of bright yellow, and a spot of yellow in front of the eye, at the base of the mandible; upper mandible dark brown; lower mandible yellowish brown, darkest at the base. Some specimens show a spot of yellow upon the middle of the breast, but it is not constant. In a series of fourteen specimens, it is wanting in all but five.

The female is perhaps somewhat duller, and some specimens appear slightly smaller, but otherwise resembles the male.

Length, 7.50; wing, 3.70; tail, 3.70; tarsus, 1; toe, .82; bill, .75.

HABITAT. San Domingo.

GENUS Saltator VIEILL.

Saltator VIEILLOT, Analyse, p. 32 (1816).

Saltator guadeloupensis LAFR.

Saltator guadeloupensis LAFR. Rev. Zool. 1844, p. 167.—BP. Consp. I, p. 489 (1850).—SCL. Cat. Am. Bds. p. 97 (1862).—TAYLOR, Ibis, 1864, p. 167.—GRAY, Handl. Bds. II, p. 74 (1870).—SCL. & SALV. Nom. Avium Neotr. p. 26 (1873).—LAWR. Pr. U. S. Nat. Mus. I, pp. 354, 457 (1878).—CORY, List Bds. W. I. p. 12 (1885).

Saltator martinicensis BP. Consp. I, p. 489 (1850).—GRAY, Handl. Bds. II, p. 75 (1870).

SP. CHAR. *Male:*—Head and back bright olive green, shading into gray on the rump; wings showing the outer webs of the primaries and secondaries green, lacking on the first three primaries, or if showing at all, appearing in a form of a narrow pencilled line; the wing-coverts olive green; throat white, showing a dash of dark brown on either side; a whitish superciliary line; cheeks and ear-coverts olive green; breast and underparts dull buffy white, tinged slightly with olive, and showing faint pencilled lines of pale brown; tail blackish; bill black at the base, pale at the tip.

Female:—Similar to the male; the dark brown streak on the sides of the throat lacking in some specimens, brownish olive in others, but apparently always paler than in the male.

Length (skin), 8; wing, 3.75; tail, 3.50; tarsus, .85; bill, .75.

HABITAT. Guadeloupe and Martinique.

GENUS Guiraca SWAINS.

Guiraca SWAINSON, Zool. Journ. III, p. 350 (1827).

Guiraca cærulea (LINN.).

Loxia cærulea LINN. Syst. Nat. I. p. 306 (1766).

Coccoborus cæruleus LEMB. Aves Cuba, p. 61 (1850).—CAB. J. f. O. 1856, p. 9 (Cuba).

Guiraca cærulea BREWER. Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 285 (1866); *ib.* J. f. O. 1874, p. 126 (Cuba).—CORY. List. Bds. W. I. p. 12 (1885).

Recorded from Cuba.

GENUS Habia REICH.

Habia REICH. Av. Syst. Nat. 1850. pl. xxviii.

Habia ludoviciana (LINN.).

Loxia ludoviciana LINN. Syst. Nat. I. p. 306 (1766).

Guiraca ludoviciana GOSSE, Bds. Jam. p. 259 (1847).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).—ALBRECHT, J. f. O. 1862, p. 196 (Jamaica).—A. & E. NEWTON, Handb. Jamaica, p. 104 (1881).

Coccoborus ludovicianus LEMB. Aves Cuba, p. 59 (1850).

Hedymeles ludoviciana CAB. J. f. O. 1856, p. 9 (Cuba).

Goniaphea ludoviciana GUNDL. Repert. Fisico-Nat. Cuba, I. p. 286 (1866); *ib.* J. f. O. 1874, p. 126 (Cuba).

Habia ludoviciana CORY. List Bds. W. I. p. 12 (1885).

Accidental in Cuba and Jamaica.

Habia melanocephala (Swains.) is recorded from Cuba (*Hedymeles melanocephala* Cabanis, J. f. O. 1856, p. 9). It has no other West Indian record, and has not been cited by later authors.

FAMILY FRINGILLIDÆ.

GENUS **Loxigilla** LESS.

Loxigilla LESSON, Traité, p. 443 (1831).

Loxigilla violacea (LINN.).

Loxia violacea LINN. Syst. Nat. I, p. 306 (1766).

Pyrrhula violacea GOSSE, Bds. Jam. p. 254 (1847).

Pyrrhula robinsonii GOSSE, Bds. Jam. p. 259 (1847).—ALBRECHT, J. f. O. 1862, p. 196.

Pyrrhulagra violacea BP. Consp. I, p. 493 (1850).

Loxigilla violacea SALLÉ, P. Z. S. 1857, p. 231. —ALBRECHT, J. f. O. 1862, p. 196.—SCL. Cat. Am. Bds. p. 102 (1862).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 297.—GRAY, Handl. Bds. II, p. 104 (1870).—SCL. & SALV. Nom. Avium Neotr. p. 27 (1873).—RIDGW. Pr. U. S. Nat. Mus. I, p. 250 (1878).—CORY, Bds. Bahama I. p. 85 (1880); *ib.* Bull. Nutt. Orn. Club, VI, p. 152 (1881).—A. & E. NEWTON, Handb. Jamaica, p. 104 (1881).—TRISTRAM, Ibis, 1884, p. 168.—CORY, Bds. Haiti & San Domingo, p. 69 (1885); *ib.* List Bds. W. I. p. 12 (1885).

Spermophila violacea BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 119 (1859).

Loxia (Pyrrhulagra) violacea BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 93 (1866).

Loxigilla violacea β. *bahamensis* RIDGW. Pr. U. S. Nat. Mus. I, p. 250 (1878).

SP. CHAR. *Male:*—Entire plumage black, showing a slight brownish tinge upon the quills; throat, crissum and crescent over the eye reddish brown; bills and legs black.

Female:—Underparts gray, with a tinge of olive green upon the back; below ash, lightest upon the belly, showing a tinge of olive upon the breast and sides; quills with fine edgings of dull white;

crissum, a crescent over the eye, and markings upon the chin pale reddish brown, much lighter than in the male; under mandible pale.

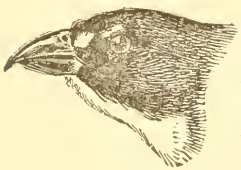
Immature birds resemble the female.

Length, 5.80; wing, 3; tail, 2.70; tarsus, 90; bill, .50.

HABITAT. Bahamas, Jamaica, Haiti, and San Domingo.

Specimens from different localities often vary in coloration and size, those from Jamaica and San Domingo being somewhat smaller than those from the Bahama Islands. The Jamaica bird differs from the Bahama form, in being somewhat smaller; the red of the throat is lighter, and the under wing-coverts are gray, instead of dull white. It seems to represent a fairly good geographical race. Mr. Ridgway, who first separated them, described the Bahama bird as *L. violacea bahamensis*, but as the type of *L. violacea* came from the Bahamas, the name *bahamensis* becomes a synonym, and the Jamaica form remains as yet unnamed, should it be thought advisable to separate them.

Loxigilla noctis (LINN.).



Fringilla noctis LINN. Syst. Nat. I, p. 320 (1766). —DENNY, P. Z. S. 1847, p. 38.

Pyrrhulagra noctis BP. Consp. I, p. 493 (1850) (excl. syn.).

Loxigilla noctis SCL. Cat. Am. Bds. p. 102 (1862). —TAYLOR, Ibis, 1864, p. 167.—GRAY, Handl. Bds. II, p. 104 (1870).—SCL. & SALV. Nom. Avium Neotr. p. 27 (1873).—SCL. P. Z. S. 1874, p. 175.—LISTER, Ibis, 1880, p. 40.—GRISDALE, Ibis, 1882, p. 486.—CORY, List Bds. W. I. p. 12 (1885).

SP. CHAR. *Male:*—Entire plumage black; superciliary stripe, and throat chestnut-rufous; under tail-coverts rufous; bill and feet black.

Female:—Upper surface dull reddish brown, brightest on the rump; underparts olive brown; wing-coverts heavily edged with rufous; secondaries tinged with the same color; under mandible brown.

Length (skin), 4.50; wing, 2.70; tail, 1.85; tarsus, .75.

HABITAT. Lesser Antilles.

Loxigilla noctis sclateri.

Loxigilla noctis SCL. P. Z. S. 1871, p. 270.

Loxigilla noctis sclateri ALLEN, Bull. Nutt. Orn. Club, V. p. 166 (1880). —CORY, List Bds. W. I. p. 12 (1885).

SP. CHAR. *Male:*—Differs from true *noctis* by having the superciliary line much smaller, almost absent in some specimens, and in lacking the rufous on the under tail-coverts; but the characters are not constant.

HABITAT. Santa Lucia.

Loxigilla anoxantha (GOSSE).

Spermophila anoxantha GOSSE, Bds. Jam. p. 247 (1847).

Loxigilla anoxantha SCL. P. Z. S. 1861, p. 74; *ib.* Cat. Am. Bds. p. 102 (1866).—ALBRECHT, J. f. O. 1862, p. 196.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 297.—GRAY, Handl. Bds. II, p. 104 (1870).—SCL. & SALV. Nom. Avium Neotr. p. 27 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 104 (1881).—CORY, List Bds. W. I. p. 12 (1885).

SP. CHAR. *Male:*—Head, throat, and underparts dull black; back, rump and wing-coverts having the feathers edged with bright yellow giving a yellowish appearance to the surface; under tail-coverts chestnut; quills and tail dull brown, slightly edged with yellowish.

Female:—Entire upper plumage dull green; throat and breast grayish, with a tinge of olive, becoming pale on the belly.

Length (skin), 4.25; wing, 2.40; tail, 1.40; tarsus, .90.

HABITAT. Jamaica.

Loxigilla portoricensis (DAUD.).

Loxia portoricensis DAUD. Traité D'Orn. II, pl. 29.—SUNDEV. Oefv. K. Vet. Akad. Förh. 1869, p. 597.

Pyrrhula auranticollis VIEILL. Enc. Méth. p. 1028.

Pyrrhulagra portoricensis BP. Consp. I, p. 492 (1850).—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 308 (1878).

Loxia (Pyrrhulagra) portoricensis BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 254 (1866).

Loxigilla portoricensis GRAY, Handl. Bds. II. p. 104 (1870).—CORY, List Bds. W. I. p. 12 (1885).

SP. CHAR. *Male:*—A narrow line of black on the forehead; top of the head chestnut rufous, separated at the nape by the black of the back, the black color dividing it like a wedge; throat and under tail-coverts chestnut rufous; rest of plumage black; under wing-coverts dull white; bill and feet black.

Female:—Similar to the male, possibly somewhat duller in coloration.

Length (skin), 7.50; wing, 3.50; tail, 3; tarsus, .95.

HABITAT. Porto Rico.

Loxigilla portoricensis grandis.

Loxigilla portoricensis var. *grandis* LAWR. Pr. U. S. Nat. Mus. IV, p. 204 (1881).
Loxigilla portoricensis grandis CORY, List Bds. W. I. p. 12 (1885).

SP. CHAR. *Male:*—Larger than *Loxigilla portoricensis*, and having the rufous chestnut coloring darker.

Length (skin), 8; wing, 4.25; tail, 3.25; tarsus, 1.

HABITAT. St. Christopher.

Dr. Gundlach records "*Cardinalis virginianus*" (Repert. Fisico-Nat. Cuba, I, p. 397, 1886), as occurring in Cuba. It is possible that the specimen in question was an escaped cage bird, although there is no reason why it should not occasionally occur there, being common in Florida.

GENUS Melopyrrha BP.

Melopyrrha BONAPARTE. Compt. Rend. XXXVII, p. 924 (1853).

Melopyrrha nigra (LINN.).

Loxia nigra LINN. Syst. Nat. I, p. 306 (1776).
Pyrrhula crenirostris "VIEILL. Ois. Chant. pl. 77 (1805)."
Pyrrhula nigra VIGORS, Zool. Journ. 1827, p. 440.—VIEILL. Gal. Ois. I, p. 65, pl. 57 (1834).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 108 (1840).—GUNDL. Journ. Bost. Soc. Nat. Hist. VII, p. 317 (1851).
Melopyrrha nigra CAB. J. f. O. 1856, p. 8.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—SCL. Cat. Am. Bds. p. 103 (1862).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 285 (1865); *ib.* J. f. O. 1874, p. 125.—GRAY, Handl. Bds. II, p. 104 (1870).—SCL. & SALV. Nom. Avium Neotr. p. 28 (1873).—CORY, List Bds. W. I. p. 12 (1885).

SP. CHAR. *Male:*—Upper surface dull black, showing a tinge of bluish when held in the light, brightest on the head; under surface blackish, becoming dusky on the belly; primaries broadly edged with white on the basal half of the inner webs, some of the primaries delicately edged with white, showing distinctly on the fourth and fifth; wing-coverts broadly marked with white; carpus and under wing-coverts white; tail brownish black.

The female is similar to the male but slightly duller in plumage.

Length (skin), 5.75; wing, 2; tail, 2.25; tarsus, .68.

HABITAT. Cuba.

GENUS Loximitris BRYANT.

Loximitris BRYANT. Pr. Bost. Soc. Nat. Hist. XI, p. 93 (1866).

Loximitris dominicensis (BRYANT).

Chrysomitris (*Loximitris*) *dominicensis* BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 93 (1866).

Chrysomitris dominicensis GRAY, Handl. Bds. II, p. 81 (1870).—CORY, Bull. Nutt. Orn. Club, VI, p. 152 (1881).

Loximitris dominicensis CORY, Bds. Haiti & San Domingo, p. 67 (1885); *ib.* List Bds. W. I. p. 12 (1885).

SP. CHAR. *Male:*—"Bill light brown color, with the top dusky; whole head and throat black; back and scapulars olive; the centre of each feather dusky; upper tail-coverts bright olive yellow; wings with the quills and coverts blackish brown; the smaller coverts with so much of the tips olive as to appear almost wholly of this color; the greater coverts and all the quill-feathers, except the first, bordered externally with the same color, very narrowly on the primaries, and suddenly wider on the secondaries, but only on the posterior half, so that the closed wing presents a distinct blackish bar, running nearly across its centre; tail with the centre feather, outer web of first, and tips of all, blackish brown, the rest bright chrome yellow; beneath yellow, washed with olive on the flanks, and brightest on the crissum." (BRYANT, l. c., orig. descr.).

Immature birds are dull olive, mottled with brownish on the back, and the underparts yellowish white, streaked with pale brown.

Length, 4.10; wing, 2.60; tail, 1.55; tarsus, .53; bill, .38.

HABITAT. San Domingo.

GENUS Pyrrhomitris BONAP.

Pyrrhomitris BONAP. Consp. I, p. 517 (1850).

Pyrrhomitris cucullata (SWAINS.).

Carduelis cucullata SWAINS. Zool. Illust. 1820, pl. 7.

Fringilla cubæ GERVAIS, Mag. Zool. 1835, pl. 44.—CAB. J. f. O. 1856, p. 10 (Cuba); *ib.* 1857, p. 241 (Cuba); *ib.* GUNDL. 1859, p. 295 (Cuba); *ib.* 1861, p. 412 (Cuba); *ib.* 1871, p. 282 (Cuba).

Pyrrhomitris cucullata BP. Consp. I, p. 517 (1850) (Antilles).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 397 (1766) (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 207 (1878) (Porto Rico); *ib.* J. f. O. 1878, p. 160 (Porto Rico).

Pyrrhomitris cubæ GRAY, Handl. Bds. II, p. 82 (1870) (Antilles)?

SP. CHAR. *Male:*—Entire head and throat black; back dull reddish orange; rump bright orange red; underparts orange red, whitening at the vent; under tail-coverts pale orange; primaries having the basal half of the outer web pale orange; wings and tail dark brown.

Female:—Entire upper parts grayish olive; rump pale orange; underparts dull gray, whitening near the vent; a patch of orange on the breast; otherwise resembles the male.

Length (skin), 3.50; wing, 2.37; tail, 1.15; tarsus, .50; bill, .40.

Introduced in Cuba and Porto Rico.

Both *Spinus pinus* (Wils.) and *Spinus mexicana* (Swains.) have been recorded from Cuba; the references are as follows:

Chrysomitris pinus GUNDL. J. f. O. 1856, p. 9; *ib* Repert. Fisico-Nat. Cuba, I, p. 397 (1866).

Chrysomitris mexicana GUNDL. Repert. Fisico-Nat. Cuba, I, p. 397 (1866) (Cuba).

GENUS **Euetheia** REICH.

Euetheia REICHENBACH, Av. Syst. Nat. Knacker. pl. 79, "June 1st. 1850."

Euetheia olivacea (GMEL.).

Emberiza olivacea GMEL. Syst. Nat. I, p. 309 (1788).

Spermophila olivacea GOSSE, Bds. Jam. p. 249 (1847).—ALBRECHT, J. f. O. 1862, p. 196.

Phonipara olivacea SCL. P. Z. S. 1855, p. 159; *ib.* Cat. Am. Bds. p. 107 (1862).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 297.—SCL. & SALV. Nom. Avium Neotr. p. 29 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 104 (1881).—CORY, Bull. Nutt. Orn. Club. VI, p. 152 (1881); *ib.* Bds. Haiti & San Domingo, p. 65 (1885).

Euethia lepida CAB. J. f. O. 1856, p. 7.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—GUNDL. Repert. Fisico-Nat. Cuba, I. p. 284 (1866).—SUNDEV. Oefv. K. Vet. Akad. Förh. 1869, p. 597.—GUNDL. J. f. O. 1874, p. 122; *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 204 (1878).

Fringilla (Phonipara) olivacea BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 93 (1866).

Euetheia olivacea CORY, List Bds. W. I. p. 12 (1885).

SP. CHAR. *Male:*—Above dull olive; a superciliary stripe, and a patch on the chin and upper throat orange yellow, rest of throat black; a narrow line of black bordering the yellow of the throat, reaching to the front of the eye; lower eyelid dull yellow; underparts olivaceous gray; carpus dull yellow; bill and feet dark brown.

Female:—Lacking the black of head and throat in the male; the yellow is much less conspicuous and paler; belly dull gray; the olive of the back duller than in the male.

Length, 4; wing, 2; tail, 1.50; tarsus, .50; bill, .30.

HABITAT. Cuba, Jamaica, Haiti, San Domingo, and Porto Rico.

Euetheia canora (GMEL.).

Loxia canora GMEL. Syst. Nat. I, p. 858 (1788).
Phonipara canora BP. Consp. I, p. 494 (1850).—GRAY, Handl. Bds. II, p. 98 (1870).—SCL. & SALV. Nom. Avium Neotr. p. 29 (1873).—BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 93 (1874).
Euethia canora BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 284 (1866); *ib.* J. f. O. 1874, p. 123.
Euetheia canora CORY, List Bds. W. I. p. 12 (1885).

SP. CHAR. *Male*:—Throat and cheeks black, extending above the eye; a broad band of bright yellow extends across the lower throat to the sides of the neck, and passes in a narrow line, edging the black, to the eye; top of head slaty brown; rest of upper surface bright olive green; breast brownish black, shading into pale gray on the belly and under tail-coverts.

Female:—Throat dark chestnut brown, shading into gray on the cheeks; yellow collar much paler than in the male; chest and underparts ashy; the rest as in the male.

Length (skin), 3.75; wing, 2; tail, 2.05; tarsus, .62.

HABITAT. Cuba.

Euetheia bicolor (LINN.).

Fringilla zena LINN. Syst. Nat. I, 10th ed. p. 183 (1758).
Fringilla bicolor LINN. Syst. Nat. I, 12th ed. p. 324 (1766).
Spermophila bicolor GOSSE, Bds. Jam. p. 252 (1847).—BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 119 (159).—ALBRECHT, J. f. O. 1862, p. 196.
Phonipara bicolor BP. Consp. I, p. 494 (1850).—CASSIN, Pr. Acad. Nat. Sci. Phila. 1860, p. 376.—SCL. Cat. Am. Bds. p. 106 (1862).—SUNDEV. Oef. K. Vet. Akad. Förh. 1869, p. 596.—SCL. & SALV. Nom. Avium Neotr. p. 29 (1873).—CORY, Bds. Bahama I. p. 91 (1880); *ib.* Bull. Nutt. Orn. Club, VI, p. 152 (1881).—TRISTRAM, Ibis, 1884, p. 168.
Phonipara marchii BAIRD, Pr. Acad. Nat. Sci. Phila. 1863, p. 297.—A. & E. NEWTON, Handb. Jamaica, p. 104 (1881).
Fringilla (*Phonipara*) *zena* var. *portoricensis* BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 254 (1866).
Fringilla zena var. *marchi* BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 93 (1867).
Phonipara zena BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 93 (1874).—RIDGW. Pr. U. S. Nat. Mus. VII, p. 172 (1884).—CORY, Bds. Haiti and San Domingo, p. 63 (1885).
Euethia bicolor GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 205 (1878).
Euetheia bicolor CORY, List Bds. W. I. p. 12 (1885).

SP. CHAR. *Male:*—General plumage dull olive; whole of breast and throat black; a blackish tinge sometimes perceptible on the forehead; belly dull gray, shading into olive on the flanks; surface of wings and tail olive; primaries, secondaries, and tail-feathers brown, showing olive on the outer webs; some males have only a small patch on the chin black, others have nearly the entire under-surface black, the extent of the color varying greatly, perhaps according to the age of the bird.

Female:—Resembles the male, but lacks the black of the throat, which is replaced by dull olivaceous gray.

Length, 4.10; wing, 2.05; tail, 1.60; tarsus, .54; bill, .40.

HABITAT. Bahama Islands and Antilles.

After a careful examination of numerous specimens of the so called *E. marchi*, from Jamaica, and comparing them with a series of some seventy specimens of *E. bicolor*, I fail to see any differences sufficient to separate them. The underparts of *E. marchi* are somewhat browner; the back is also darker; but this stage of plumage occurs in the young and the female of *E. bicolor*.

Euetheia adoxa (GOSSE).

Spermophila adoxa GOSSE, Bds. Jam. p. 253 (1847).—ALBRECHT, J. f. O. 1862, p. 196.

Phonipara adoxa "MARCH, P. A. P. 1863, p. 297."—A. & E. NEWTON, Handb. Jamaica. p. 104 (1881).—CORY, Revised List Bds. W. I. p. 12 (1886).

SP. CHAR.—"Irides dark brown; feet purplish; beak horn-colour, nearly black above; whole upper parts olive brown; under parts grayish white; sides and vent fawn color. Length, 4¼; expanse, 6½; flexture, 2; tail, 1 6-10 (nearly); rictus, 7-20; tarsus, 7-10; middle toe, 7-10." (GOSSE, l. c., orig. descr.)

HABITAT. Jamaica.

I have never seen a specimen of this so-called species; judging from the description, it would seem possible that it might prove to be the female of *E. bicolor*.

GENUS Passerina VIEILL.

Passerina VIEILLOT. Analyse (1816).

Passerina ciris (LINN.).

Emberiza ciris LINN. Kong. Sv. Vet. Akad. Hand. 1750, p. 278, tab. vii, f. 1; *ib.* Syst. Nat. I, p. 313 (1766).

Passerina ciris D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 102 (1840). —CORY, List Bds. W. I. p. 12 (1885).

?Linaria caniceps D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 107 (1840).—GUNDL. J. f. O. 1871, p. 276 (young male) (Cuba).

Spiza ciris CAB. J. f. O. 1856, p. 8 (Cuba).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).

Cyanospiza ciris GUNDL. Repert. Fisico-Nat. Cuba, I, p. 285 (1866).—MOORE, Pr. Bost. Soc. Nat. Hist. XIX, p. 247 (1877) (New Providence).—CORY, Bds. Bahama I. p. 89 (1880).

Accidental in Cuba and Bahamas.

Passerina cyanea (LINN.).

Tanagra cyanea LINN. Syst. Nat. I, p. 315 (1766).

Passerina cyanea D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 100 (1840).—CORY, List Bds. W. I. p. 12 (1885).

Spiza cyanea CAB. J. f. O. 1856, p. 8 (Cuba).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).

Cyanospiza cyanea GUNDL. Repert. Fisico-Nat. Cuba, I, p. 285 (1866); *ib.* J. f. O. 1874, p. 125 (Cuba). — BRACE, Pr. Bost. Soc. Nat. Hist. XIX, p. 242 (1877) (New Providence). — CORY, Bds. Bahama I. p. 90 (1880).

Accidental in Cuba and Bahamas.

GENUS Passer BRISS.

Passer BRISSON. Orn. 1760.

Passer domesticus (LINN.).

Fringilla domestica LINN. Syst. Nat. I, p. 323 (1766).

Passer domesticus BRACE, Pr. Bost. Soc. Nat. Hist. XIX, p. 240 (1877) (New Providence).—CORY, Bds. Bahama I. p. 88 (1880); *ib.* List Bds. W. I. p. 13 (1885).

An introduced species, resident in some of the Bahama Islands. Cuba?

GENUS Ammodramus SWAINS.

Ammodramus SWAINSON, Zool. Journ. III, 1827.

Ammodramus sandwichensis savanna (WILS.).

Fringilla savanna WILS. Am. Orn. III, p. 55 (1811).

Emberiza savanna LEMB. Aves Cuba, p. 55 (1850).

Passerculus savanna CAB. J. f. O. 1856. p. 6 (Cuba).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 283 (1866); *ib.* J. f. O. 1874, p. 121 (Cuba).—CORY, Bds. Bahama I. p. 88 (1880); *ib.* List Bds. W. I. p. 13 (1885).

Ammodramus sandwichensis savanna RIDGW. Proc. U. S. N. Mus. VIII, p. 354 (1885).

Recorded from the Bahamas and Cuba.

GENUS Spizella BONAP.

Spizella BONAPARTE, Geog. & Comp. List, p. 33 (1838).

Spizella socialis (WILS.).

Fringilla socialis WILS. Am. Orn. II. p. 127 (1810).

Emberiza pallida LEMB. Aves Cuba, p. 54 (1850).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).

Spinites pallidus CAB. J. f. O. 1856, p. 7 (Cuba).

Spizella socialis GUNDL. Repert. Fisico-Nat. Cuba, I, p. 284 (1866); *ib.* J. f. O. 1874, p. 121 (Cuba).—CORY, List Bds. W. I. p. 13 (1885).

Accidental in Cuba.

Ammodramus savannarum (GMEL.).

Fringilla savannarum GMEL. Syst. Nat. I, p. 921 (1788).

Coturniculus tixicrus GOSSE, Bds. Jam. p. 242 (1847).—SCL. P. Z. S. 1861, p. 72 (Jamaica).—ALBRECHT, J. f. O. 1862, p. 196 (Jamaica).—SCL. & SALV. Nom. Avium Neotr. p. 32 (1873) (Jamaica).

Emberiza passerina LEMB. Aves. Cuba, p. 56 (1850)?

Coturniculus passerinus CAB. J. f. O. 1856, p. 6 (Cuba).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 298 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 284 (1866); *ib.* J. f. O. 1874, p. 121 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 203 (1878) (Porto Rico).—CORY, List Bds. W. I. p. 13 (1885).

Fringilla (*Coturniculus*) *passerina* BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 254 (1866) (Porto Rico).—SUNDEV. Oefv. K. Vet. Akad. Förh. 1869, p. 597 (Porto Rico).

Coturniculus savannarum A. & E. NEWTON. Handb. Jamaica, p. 104 (1881).

HABITAT. Jamaica, Cuba, and Porto Rico.

The North American form, *A. savannarum passerinus*, has been taken in the Bahama Islands, specimens of which are in my collection.

Ammodramus maritimus (WILS.).

Fringilla maritima WILS. Am. Orn. IV, p. 68 (1811).
Ammodramus maritimus SWAINS. Zool. Journ. III, p. 328 (1827).—CAB. J. f. O. 1856, p. 7 (Cuba).

Recorded from Cuba.

GENUS Sicalis BOIE.

Sicalis BOIE, 1828.

Sicalis flaveola (LINN.).

Fringilla flaveola LINN. Syst. Nat. I, p. 321 (1766).
Fringilla flava MÜLL. Syst. Nat. Suppl. p. 164 (1766).
Emberiza brasiliensis GMEL. Syst. Nat. I, p. 872 (1788).—LAFR. et D'ORB. Syn. Av. 1837, p. 73.
Fringilla brasiliensis SPIX, Av. Bras. I, p. 47, pl. 61.—MAX. Beitr. III, p. 614 (1831).
Sicalis brasiliensis TSCH. Faun. Per. p. 215 (1844).—CAB. in Schomb. Guian. III, p. 679 (1848).—BURM. Syst. Ueb. III, p. 253.—SCL. P. Z. S. 1861, p. 74.—ALBRECHT, J. f. O. 1862, p. 197.—TAYLOR, Ibis, 1864, p. 83.—WYATT, Ibis, 1871, p. 328.
Crithagra brasiliensis GOSSE, Bds. Jam. p. 245 (1847).—BP. Consp. I, p. 521 (1820).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 298.
Sycalis auripectus BP. Compt. Rend. 37, p. 917.—SCL. P. Z. S. 1855, p. 159; *ib.* Cat. Am. Bds. p. 126 (1862).
Sicalis flava GRAY, Handl. Bds. II, p. 84 (1870).—A. & E. NEWTON, Handb. Jamaica, p. 117 (1881).
Sycalis flaveola PELZ. Orn. Bras. p. 231 (1871).—SCL. Ibis, 1872, p. 41.—SCL. & SALV. Nom. Avium Neotr. p. 34 (1873).—CORY, List. Bds. W. I. p. 13 (1885).

SP. CHAR. *Male:*—Above olive green, slightly marked on the back with pale streaks; forehead orange; underparts yellow; wings and tail pale brown, the outer webs of primaries and outer and inner webs of secondaries edged with yellow; tail-feathers edged with yellow.

Female:—Resembles the male, but much paler; underparts being grayish, tinged with yellow, and under surface becoming white on the belly; orange on the forehead showing very slightly if at all.

Length (skin), 5.50; wing, 2.75; tail, 2; tarsus, .75.

HABITAT. Jamaica.

The specimens described are from Brazil, as I possess none from Jamaica.

Carduelis elegans (LINN.) is recorded from Cuba by Dr. Gundlach (Repert. Fisico-Nat. Cuba, I, p. 396, 1866). It was probably an escaped cage bird.

GENUS Habropyga CABAN.

Habropyga CABANIS. Wiegm. Archiv, 1847, XIII, p. 331; Mus. Hein. I, p. 169.

Habropyga melpoda (VIEILL.).

Fringilla melpoda VIEILL. Nouv. Dict. XII, p. 177 (1817).
Habropyga melpoda GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 206 (1878) (Porto Rico).

SP. CHAR. *Male:*—Top of head drab gray; sides of the head and cheeks, including the eye, reddish orange; back and wings light brown; lower rump and upper tail-coverts crimson; throat dull white, shading into gray on the sides of the neck, separating the orange of the cheeks from the brown of the upper parts; rest of underparts dull grayish, showing a purplish tinge on the flanks; a spot of pale reddish orange near the vent; wings and tail brown.

Female:—Top of head drab gray, paler than in the male; rest of upper parts like the male; no orange on side of the head; underparts showing a pale orange yellow tinge.

Length (skin), 4.10; wing, 1.85; tail, 1.75; tarsus, .56.

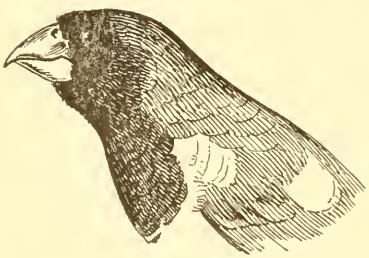
An introduced species, common in Porto Rico.

FAMILY PLOCEIDÆ.

GENUS Spermestes SWAINS.

Spermestes SWAINSON, Class. Birds, p. 280 (1837).

Spermestes cucullatus (SWAINS.).



Loxia cucullata SWAINS. Zool. Illust. 1820, pl. 7.
Spermestes cucullata SWAINS. REICH. Singv. t. 12, pp. 114, 115. —BP. Consp. I, p. 454 (1850).—SUNDEV. Oefv. K. Vet. Akad. Förh. 1869, p. 597.—GRAY. Handl. Bds. II, p. 54 (1870).
Loxia (*Spermestes*) *cucullata* BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 254 (1866).
Spermestes cucullatus GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 206 (1878).—CORY, List Bds. W. I. p. 13 (1885).

SP. CHAR. *Male:*—Top of head dark green, rest of upper surface pale brown; feathers on the rump alternately banded with dark brown and white; throat and breast dark green, showing purple in some lights; belly white, having a patch of metallic green on the sides; flanks and thighs banded with white and brown; wings pale brown, a patch of metallic green on the coverts; tail dark brown.

Female:—Above pale brown, darkest on the head; underparts pale rufous; wings and tail brown.

Length (skin), 4; wing, 2; tail, 1; tarsus, .40.

An introduced species, resident in Porto Rico.

FAMILY ICTERIDÆ.

GENUS **Icterus** BRISS.

Icterus BRISSON, Orn. II, p. 85 (1760).

Icterus bonana (LINN.).

Oriolus bonana LINN. Syst. Nat. I, p. 162 (1766).

Icterus bonana DAUD. Tr. d'Orn. II, p. 332 (1800).—SCL. & SALV. Nom. Avium Neotr. p. 36 (1873).—LAWR. Pr. U. S. Nat. Mus. I, p. 355 (1878).—SCL. Ibis, 1883, p. 358.—CORY, List Bds. W. I. p. 13 (1885).

Pendulinus bonana VIEILL. Nouv. Dict. V, p. 316.—BP. Consp. I, p. 432 (1850).—CASSIN, Pr. Acad. Nat. Sci. Phila. 1867, p. 54.

Xanthornus bonana CAB. Mus. Hein. p. 183.

Icterus bonanæ SCL. Cat. Am. Bds. p. 131 (1862).

SP. CHAR. *Male:*—Head, throat, and upper breast dark reddish brown; upper half of back, wings and tail black; lower half of back, including rump, dull orange; lesser wing-coverts dull brownish orange; under wing-coverts orange, somewhat brighter than the color of the belly.

Length (skin), 8.25; wing, 3.50; tail, 3.15; tarsus, .78.

HABITAT. Martinique.

Icterus hypomelas (BONAP.).

Icterus dominicensis VIGORS, Zool. Journ. 1828, p. 441.—"ALBRECHT, J. f. O. 1861, p. 212."

Icterus virescens VIGORS, Zool. Journ. 1828, p. 441.

Psarocolius melanopis WAGL. Isis, 1829, p. 759.

Xanthornus dominicensis D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 115 (1840).—GUNDL. Journ. Bost. Soc. Nat. Hist. VI, p. 318 (1852).—CAB. J. f. O. 1856, p. 10.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).

Pendulinus hypomelas BP. Consp. I. p. 433 (1850).—CASSIN, Pr. Acad. Nat. Sci. Phila. 1867, p. 59.

Xanthornus hypomelas GUNDL. Repert. Fisico-Nat. Cuba. I. p. 287 (1866); *ib.* J. f. O. 1874. p. 128.

Melanopsar hypomelas GRAY, Handl. Bds. II, p. 32 (1870).

Icterus hypomelas SCL. & SALV. Nom Avium Neotr. p. 36 (1873).—SCL. Ibis, 1883, p. 360.—CORY, List Bds. W. I. p. 13 (1885).

Icterus dominicensis var. *hypomelas* BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 182 (1874).

SP. CHAR. *Male;*—Entire plumage glossy black; lower half of back, thighs and under tail-coverts, and a tinge on the lower belly, bright yellow; wing-coverts, carpus, and under wing-coverts bright yellow; quills and tail brownish black.

The young birds of both sexes go through the varied plumages of the young of *Icterus dominicensis.*

Length (skin), 7.75; wing, 3.62; tail, 3.70; tarsus, .90; bill, .60.

HABITAT. Cuba.

Icterus dominicensis (LINN.).

Oriolus dominicensis LINN. Syst. Nat. I, p. 163 (1766).

Icterus dominicensis DAUD. Tr. d'Orn. II, p. 335 (1800).—SALLÉ, P. Z. S. 1857, p. 232.—BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 94 (1866).—SCL. & SALV. Nom. Avium Neotr. p. 36 (1873).—CORY, Bull. Nutt. Orn. Club, VI. p. 152 (1881); *ib.* Bds. Haiti & San Domingo, p. 71 (1885); *ib.* List Bds. W. I. p. 13 (1885).—SCL. Ibis, 1883, p. 361.—TRISTRAM, Ibis, 1884, p. 168.

Pendulinus flavigaster VIEILL. Nouv. Dict. V, p. 317.

Melanopsar dominicensis GRAY, Handl. Bds. II, p. 32 (1870).

Icterus dominicensis var. *dominicensis* BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 182 (1874).

SP. CHAR. *Male:*—General plumage black; upper wing-coverts, edge of carpus, under wing-coverts, lower half of back, rump, flanks, crissum, and under tail-coverts bright yellow; outer surface of wings black; under surface of wings showing the inner webs of the feathers pale, becoming dull white at the base; bill and legs black.

Young:—Throat, cheeks, and a narrow superciliary stripe black; crown, sides of the head and breast showing a brownish tinge; rest of underparts greenish yellow; back ashy green, becoming decidedly greenish on the rump; tail olive, brightest on the edges of the feathers; primaries and secondaries brown with pale edgings.

The sexes are apparently similar.

Length, 7.10; wing, 3.60; tail, 3.50; tarsus, .80; bill, .70.

HABITAT. Haiti and San Domingo.

Icterus portoricensis (BRYANT).

Icterus dominicensis TAYLOR. Ibis, 1864, p. 167.

Icterus dominicensis var. *portoricensis* BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 254 (1866).—SUNDEV. Oefv. K. Vet. Akad. Förh. 1869. p. 597. —BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 182 (1874).

Pendulinus portoricensis CASSIN, Pr. Acad. Nat. Sci. Phila. 1867, p. 58.

Icterus xanthomus SUNDEV. Oefv. K. Vet. Akad. Förh. 1869, p. 598.

Melanopsar portoricensis GRAY, Handl. Bds. II, p. 32 (1870).

Icterus portoricensis SCL. & SALV. Nom. Avium Neotr. p. 36 (1873).—SCL. Ibis, 1883, p. 361.—CORY, List Bds. W. I. p. 13 (1885).

Xanthornus portoricensis GUNDL. Anal. Soc. Esp. Hist. VII, p. 210 (1878).

SP. CHAR. *Male*:—General plumage black; abdomen, crissum, rump, and under wing-coverts yellow; wing-coverts bright yellow, forming a broad shoulder patch; some of the feathers on the belly faintly edged with yellowish; primaries edged with dull white on the basal portion of the inner webs; wings and tail dark brown.

Immature males and females resemble those of *I. dominicensis*, and go through the same varied stages of plumage. A greenish brown specimen in my collection is labelled "adult female," but this is probably incorrect.

Length (skin), 7.50; wing, 3.50; tail, 3.25; tarsus, .95; bill, .67.

HABITAT. Porto Rico.

Icterus laudabilis SCL.

Icterus laudabilis SCL. P. Z. S. 1871, p. 270.—SCL. & SALV. Nom. Avium Neotr. p. 36 (1873).—ALLEN, Bull. Nutt. Orn. Club, V, p. 166 (1880).—SCL. Ibis. 1883. p. 361.—CORY, List Bds. W. I. p. 13 (1885).

SP. CHAR. *Male*:—General plumage glossy black; rump, thighs, lower belly and lower half of back yellow, with a tinge of orange; under wing-coverts, carpus, and lesser-coverts pale yellow; greater wing-coverts edged with white on the inner webs; lower mandible bluish at the base; upper mandible and legs brownish black.

Length (skin), 7.50; wing, 3.85; tail, 3.75; tarsus, .90.

HABITAT. Santa Lucia.

Icterus cucullatus SWAINS.

Icterus cucullatus SWAINS. Phil. Mag. 1827, p. 436.—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 286 (1866); *ib.* J. f. O. 1874, p. 127 (Cuba). —CORY, List Bds. W. I. p. 13 (1885).

Hyphantes costototl GUNDL. J. f. O. 1856, p. 11; *ib.* 1861, p. 413 (Cuba).

Yphantes bullockii BREWER. Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).

Recorded from Cuba.

Icterus leucopteryx (WAGL.).

Psarocolius leucopteryx WAGL. Syst. Av. Sp. 16.
Icterus personatus TEMM. Pl. Col. sub tab. p. 482 (1820-39).—BP. Consp. I. p. 435 (1850).
Icterus leucopteryx GOSSE. Bds. Jam. p. 226 (1847).—BP. Consp. I. p. 436 (1850).—SCL. Cat. Am. Bds. p. 34 (1862).—ALBRECHT, J. f. O. 1862, p. 197.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 299.—SCL. & SALV. Nom. Avium Neotr. p. 36 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 104 (1881).—SCL. Ibis, 1883, p. 374.—CORY, List Bds. W. I. p. 13 (1885).
Pendulinus leucopteryx CASSIN. Pr. Acad. Nat. Sci. Phila. 1867, p. 59.
Melanopsar leucopteryx GRAY, Handl. Bds. II, p. 32 (1870).

SP. CHAR. *Male:*—Throat, forehead, and in front of the eyes black; upper plumage yellowish green; underparts yellow; wings and tail black; wing-coverts pure white; showing a broad patch of white on the wing.

Female:—Black markings replaced by brownish black; tail pale greenish yellow instead of black; otherwise resembles the male.

Length (skin), 7.75; wing, 4.20; tail, 3.25; tarsus, .90; bill, .78.

HABITAT. Jamaica.

Icterus spurius (LINN.).

Oriolus spurius LINN. Syst. Nat. I. p. 162 (1766).
Icterus spurius GUNDL. Repert. Fisico-Nat. Cuba, I. p. 286 (1866); *ib.* J. f. O. 1874, p. 127 (Cuba).—CORY, List Bds. W. I. p. 13 (1885).

Accidental in Cuba.

Icterus oberi LAWR.

Icterus oberi LAWR. Pr. U. S. Nat. Mus. III. p. 351 (1880).—GRISDALE, Ibis, 1882, p. 487. pl. XIII.—SCL. Ibis, 1883, p. 362.—CORY, List Bds. W. I. p. 13 (1885).

"*Male:*—Head, neck, upper part of breast, back, wings and tail black; lower part of breast, abdomen, under tail-coverts and rump light brownish chestnut, with the concealed bases of the feathers of a clear light yellow; the thighs are yellow with a wash of chestnut; edge of wing and under wing-coverts yellow; bill black, with the sides of the under mandible bluish for half its length from the base; tarsi and toes black.

"Length (skin), 8½ inches; wing, 3⅜; tail, 4; tarsus, ⅞; bill, ⅝.

"The female has the upper plumage of a dull greenish olive, with a yellowish tinge, the front and rump inclining more to yellow; the

tail-feathers are yellowish green; quills brownish black; the primaries and secondaries are edged narrowly with dull yellowish gray; tertials are margined with fulvous; wing-coverts dark brown, margined with fulvous; edge of wing yellow; the under plumage is of a rather dull dark yellow; the breast and under tail-coverts are of a deeper or warmer color; the sides are greenish olive; bill and legs as in the male.

"The young male resembles the female in plumage, but has the back somewhat darker." (LAWR. l. c., orig. descr.)

HABITAT. Montserrat.

Icterus icterus (LINN.).

Oriolus icterus LINN. Syst. Nat. I, p. 161 (1766).

Icterus vulgaris DAUD. Tr. d'Orn. II, p. 340 (1800).—BP. Consp. I, p. 434 (1850).—BAIRD, Bds. N. Am. p. 542 (1858).—SCL. Cat. Am. Bds. p. 133 (1862).—CASSIN, Pr. Acad. Nat. Sci. Phila. 1867, p. 46.—FINSCH, P. Z. S. 1870, p. 578.—SCL. & SALV. Nom. Avium Neotr. p. 36 (1873).—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 209 (1878).—SALV. & GODM. Ibis, 1879, p. 200.—A. & E. NEWTON, Handb. Jamaica, p. 104 (1881).—SCL. Ibis, 1883, p. 369.—CORY, List Bds. W. I. p. 13 (1885).

Icterus longirostris VIEILL. Nouv. Dict. 34, p. 547.—BP. Consp. I, p. 435 (1850).—CASSIN, Pr. Acad. Nat. Sci. Phila. 1867, p. 46.

SP. CHAR. *Male:*—Entire head, throat, and a broad patch on the back black; wings and tail very dark brown, almost black, the former having some of the coverts white, forming a wing-band; outer webs of secondaries edged with white; rest of plumage bright orange yellow; the orange of the rump and nape being separated by the black back-patch before mentioned; feathers of the throat narrow and sharply pointed; bill black, the base of lower mandible bluish white.

The sexes are described as similar.

Length (skin), 10; wing, 4.50; tail, 4; tarsus, 1.25; bill, 1.15.

Porto Rico, Jamaica, and St. Thomas (introduced).

Icterus galbula (LINN.).

Coracias galbula LINN. Syst. Nat. 10th ed. (1758).

Icterus baltimore LEMB. Aves Cuba, p. 63 (1850).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 286 (1866); *ib.* J. f. O. 1874, p. 127 (Cuba).

Hyphantes baltimore CAB. J. f. O. 1856, p. 10 (Cuba).

Yphantes baltimore BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).

Icterus galbula COUES, Bull. Nutt. Orn. Club, V, p 98 (1880).—CORY, List Bds. W. I. p. 13 (1885).

Accidental in Cuba.

GENUS **Dolichonyx** SWAINS.

Dolichonyx SWAINSON, Zool. Journ. III. p. 351 (1827).

Dolichonyx oryzivorus (LINN.).

Emberiza oryzivora LINN. Syst. Nat. I, p. 311 (1766).

Dolichonyx oryzivorus GOSSE, Bds. Jam. p. 229 (1847).—CAB. J. f. O. 1856, p. 11 (Cuba).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).—SCL. P. Z. S. 1861, p. 74 (Jamaica).—ALBRECHT, J. f. O. 1862, p. 197 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 287 (1866); *ib.* J. f. O. 1874, p. 129 (Cuba).—CORY, Bds. Bahama I. p. 97 (1880).—A. & E. NEWTON, Handb. Jamaica, p. 104 (1881).—CORY, List Bds. W. I. p. 14 (1885).

Dolichonix oryzivora LEMB. Aves Cuba, p. 57 (1850).

Dolichonyx orizyvora BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 119 (1859) (Bahamas).

Dolichonyx orizivorus MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 299 (Jamaica).

Recorded from the Bahamas, Cuba, Jamaica, and Grenada.

Molothrus bonariensis (Cab.) is recorded from Bisque, Virgin Islands (*Molothrus sericeus* (Licht.) Newton, Ibis, 1860, p. 308). It is a South American species.

GENUS **Agelaius** VIEILL.

Agelaius VIEILLOT. Analyse, p. 33 (1816).

Agelaius humeralis (VIG.).

Leistes humeralis VIG. Zool. Journ. III. p. 442 (1827).

Icterus humeralis D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 114, pl. 5 (1840).

Agelæus humeralis BP. Consp. I, p. 430 (1850).—GUNDL. J. f. O. 1856, p. 13.—SCL. Cat. Am. Bds. p. 136 (1862).—SCL. & SALV. Nom. Avium Neotr. p. 37 (1873).— SCL. Ibis, 1884, p. 11.—CORY, List Bds. W. I. p. 14 (1885).

Agelaius humeralis BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 288 (1866): *ib.* J. f. O. 1874, p. 130.—GRAY, Handl. Bds. II, p. 33 (1870).

SP. CHAR. *Male:*—General plumage uniform lustrous black, showing a slight brownish tinge on the thighs and quills when held in the light; shoulders and lesser coverts dull orange brown, shading into pale buff on the middle coverts; bill and feet black.

The sexes are similar.

Length (skin), 7.50; wing, 4; tail, 3.15; tarsus, .95; bill, .60.

HABITAT. Cuba.

Agelaius xanthomus SCL.

Agelaius chrysopterus VIEILL. Nouv. Dict. 34, p. 539.—GUNDL. Anal. Soc. Esp. Hist. Nat. VII. p 211 (1878); *ib.* J. f. O. 1878, p. 177.
Icterus xanthomus SCL. Cat. Am. Bds. p. 131 (1862).—TAYLOR, Ibis, 1864, p. 168.—BRYANT. Pr. Bost. Soc. Nat. Hist. X, p. 254 (1866).
Hyphantes xanthomus CASSIN, Pr. Acad. Nat. Sci. Phila. 1867, p. 63.
Agelæus chrysopterus SUNDEV. Oefv. K. Vet. Akad. Förh. 1869, p. 597.—SCL. & SALV. Nom. Avium Neotr. p. 37 (1873).
Agelæus xanthomus SCL. Ibis, 1884. p. 12.—CORY, List Bds. W. I. p. 14 (1885).

SP. CHAR. *Male:*—General plumage lustrous black; shoulders and coverts bright golden yellow; quills and tail showing a faint brownish tinge, apparently wanting in some specimens.

The sexes are similar.

Length (skin), 8; wing, 4.50; tail, 3.50; tarsus, .95; bill, .60.

HABITAT. Porto Rico.

Agelaius phœniceus (LINN.).

Oriolus phœniceus LINN. Syst. Nat. I. p. 161 (1766).
Agelæus phoeniceus CAB. J. f. O. 1856, p. 11 (Cuba).—CORY, Bds. Bahama I. p. 98 (1880); *ib.* List Bds. W. I. p. 14 (1885).
Agelaius phœniceus BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 119 (1859) (Bahamas).

Not uncommon in the Bahama Islands where it probably breeds. Cuba?

Agelaius assimilis GUNDL.

Agelaius assimilis GUNDL. in Lemb. Aves Cuba, p. 64 (1850); *ib.* J. f. O. 1856, p. 12; *ib.* 1861, pp. 332, 413; *ib.* 1874, p. 131.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—GRAY, Handl. Bds. II, p. 33 (1870).
Agelaius phœniceus var. *assimilis* COUES, Bds. N. W. p. 186 (1874).—BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 159 (1874).
Agelæus assimilis SCL. Ibis. 1884, p. 10.—CORY, List. Bds. W. I. p. 14 (1885).

SP. CHAR. *Male:*—Similar to *Agelæus phœniceus*, but somewhat smaller.

Female:—Entirely black; showing a brownish tinge on the head, back, and breast.

Length (skin), 7.75; wing, 3.75; tail, 3; tarsus, 1; bill, .75.

HABITAT. Cuba.

GENUS Xanthocephalus BONAP.

Xanthocephalus BONAPARTE, Consp. I, p. 431 (1850).

Xanthocephalus xanthocephalus (BONAP.).

Icterus icterocephalus BP. Am. Orn. I, p. 27 (1825).
Xanthocephalus icterocephalus GUNDL. J. f. O. 1862, p. 178 (Cuba); *ib.* Repert. Fisico-Nat. Cuba, I, p. 288 (1866); *ib.* J. f. O. 1874, p. 133 (Cuba).—CORY, List Bds. W. I. p. 14 (1885).

Dr. Gundlach writes me that he purchased a bird of this species in the market in Havana.

GENUS Sturnella VIEILL.

Sturnella VIEILLOT, Analyse, p. 34 (1816).

Sturnella hippocrepis WAGL.

Sturnella hippocrepis WAGL. Isis, 1832, p. 281.—CAB. J. f. O. 1856, p. 14.—LAWR. Ann. N. Y. Lyc. VII, p. 266 (1860).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—ALBRECHT, J. f. O. 1861, p. 206.—SCL. Ibis, 1861, p. 179; *ib.* Cat. Am. Bds. p. 139 (1862).—GUNDL. J. f. O. 1861, pp. 332, 413; *ib.* 1871, p. 276; *ib.* 1874, p. 133.—CASSIN, Pr. Acad. Nat. Sci. Phila. 1866, p. 24.—CORY, List Bds. W. I. p. 14 (1885).
Sturnella ludoviciana SCL. & SALV. Nom. Avium Neotr. p. 38 (1873) (Cuba).
Sturnella ludoviciana var. *hippocrepis* BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 172 (1874).—SCL. Ibis, 1884, p. 25.

SP. CHAR. *Male:*—Above mottled with buff, black and brown; the feathers of the back being dark brown, bordered and blotched with buff and light brown; a narrow imperfect stripe of whitish on the middle of the crown; a stripe of yellow from the nostril, over the eye, continuing in a stripe of dull buffy white to the sides of the neck; cheeks brownish; throat and middle underparts yellow, interrupted by a band of black on the upper breast; sides of the body, lower belly, and under tail-coverts dull buff, the feathers heavily streaked with dark brown; a patch of yellow on the carpus; legs and feet pale brown.

The sexes are similar.

Length (skin), 8.45; wing, 3.95; tail, 2.75; tarsus, 1.50; bill, 1.10.

Has a general resemblance to Florida specimens of *Sturnella magna*, but differing from it in having the legs and claws larger, and the underparts much more streaked.

HABITAT. Cuba.

GENUS **Nesopsar** SCL.

Nesopsar SCLATER, Ibis, 1859, p. 457.

Nesopsar nigerrimus (OSBURN).

Icterus nigerrimus, OSBURN, Zoologist. pp. 6661, 6714 (1859).
Nesopsar nigerrimus SCL. Ibis, 1059, p. 457; *ib.* Cat. Am. Bds. p. 139 (1862).—ALBRECHT, J. f. O. 1862, p. 197.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 299.—GRAY, Handl. Bds. II, p. 34 (1870).—SCL. & SALV. Nom. Avium Neotr. p. 38 (1873).—A. & E. NEWTON, Handl. Bds. p. 103 (1881).—CORY, List Bds. W. I. p. 14 (1885).
Agelaius nigerrimus CASSIN, Pr. Acad. Nat. Sci. Phila. 1861, p. 12.—PELZ. Ibis, 1873, p. 28.
Agelæus nigerrimus SCL. Ibis, 1884, p. 14.

SP. CHAR. *Male:*—General plumage glossy blue black; dull black on the belly; wings and tail very dark brown, almost black; under-surface of wings and tail showing a brownish tinge when held in the light; bill black, a faint pale mark at the base of the lower mandible.

The sexes are similar.

Length (skin), 6.50; wing, 3.50; tail, 2.50; tarsus, .90; bill, .75.

HABITAT. Jamaica.

GENUS **Quiscalus** VIEILL.

Quiscalus VIELLOT, Analyse, p. 37 (1816).

Quiscalus fortirostris LAWR.

Quiscalus rectirostris CASSIN. Pr. Acad. Nat. Sci. Phila. 1866, p. 409?
Quiscalus fortirostris LAWR. Pr. Acad. Nat. Sci. Phila. 1868, p. 360.—SCL. Ibis, 1873, p. 324; *ib.* P. Z. S. 1874, p. 175.—SCL. & SALV. Nom. Avium Neotr. p. 38 (1873).—SCL. Ibis, 1884, p. 161.—CORY, List Bds. W. I. p. 14 (1885).
Holoquiscalus rectirostris GRAY, Handl. Bds. II, p. 38 (1870)?
Holoquiscalus fortirostris GRAY, Handl. Bds. II, p. 38 (1870).

SP. CHAR. *Male:*—Head and back purplish black; a faint greenish tinge on the thighs and under tail-coverts; wings and tail black, showing greenish reflections; bill and feet black.

Female:—Similar to the male, but is somewhat duller in coloration, and is apparently smaller.

Length (skin), 8.60; wing, 4.25; tail, 3.75; tarsus, 1.25; bill, 1.

HABITAT. Barbadoes.

Quiscalus inflexirostris Swains.

Quiscalus inflexirostris Swains. An. in Men. p. 309 (1838).—Bp. Consp. I. p. 424 (1850).—Cassin. Pr. Acad. Nat. Sci. Phila. 1866. p. 407.—Semper. P. Z. S. 1872. p. 651.—Scl. P. Z. S. 1874, p. 175.—Bd. Bwr. & Ridgw. Hist. N. Am. Bds. II, p. 214 (1874).—Lawr. Pr. U. S. Nat. Mus. I, pp. 355, 487 (1878).—Scl. Ibis, 1884, p. 160.—Cory, List Bds. W. I. p. 14 (1885).

Quiscalus barita Taylor, Ibis. 1864, p. 168.

Holoquiscalus inflexirostris Gray, Handl. Bds. II, p. 38 (1870).

Quiscalus luminosus Allen, Bull. Nutt. Orn. Club. V. p. 166 (1880).

Sp. Char. *Male:*—Entire plumage lustrous black, showing a purplish tinge on the head, back, and breast, when held in the light; wings and tail bluish black; bill and feet black.

Female?—Top of head grayish brown, becoming darker brown on the back; throat dull white; underparts buffy brown; a streak of pale buff from the eye to the nape, bordered below by a narrow streak of pale brown; quills and tail dark brown, showing a slight tinge of bluish.

Immature males are intermediate between the female? and adult male, being light brown and black in patches.

Length (skin), 9; wing, 4.75; tail, 4; tarsus, 1.25; bill, 1.

Habitat. Santa Lucia and Martinique.

Quiscalus brachypterus Cassin.

Quiscalus brachypterus Cassin, Pr. Acad. Nat. Sci. Phila. 1866. p. 406.—Scl. & Salv. Nom. Avium Neotr. p. 38 (1873).—Scl. Ibis. 1884, p. 160.—Cory, List Bds. W. I. p. 14 (1885).

Quiscalus crassirostris Gundl. J. f. O. 1866, p. 188.—Bryant, Pr. Bost. Soc. Nat. Hist. X. p. 255 (1886). Sundev. Oefv. K. Vet. Akad. Förh. 1869. p. 598.

Chalcophanes lugubris Sundev. Oefv. K. Vet. Akad. Förh. 1869. p. 598.

Holoquiscalus brachypterus Gray, Handl. Bds. II, p. 38 (1870).

Chalcophanes brachypterus Gundl. J. f. O. 1874. p. 312; *ib.* 1878, p. 177; *ib.* Anal. Soc. Esp. Hist. Nat. VII. p. 213 (1878).

Quiscalus baritus var. *brachypterus* Bd. Bwr. & Ridgw. Hist. N. Am. Bds. II. p. 213 (1874).

Sp. Char. *Male:*—Entire plumage black, showing a purplish tinge when held in the light; the wings and tail have a greenish gloss; inner surface of wings showing a brownish tinge when held in the light.

The sexes appear to be similar.

Length (skin), 8.50; wing, 4.50; tail, 3.75; tarsus, 1.10; bill, 90.

Habitat. Porto Rico.

Quiscalus crassirostris SWAINS.

Gracula barita LINN. Syst. Nat. I, p. 165 (1766) ?
Sturnus jamaicensis DAUD. Tr. d'Orn. II, p. 317 (1800) ?
Quiscalus crassirostris SWAINS. An. in Men. p. 355 (1838).—GOSSE, Bds. Jam. p. 217 (1847).—BP. Consp. I, p. 425 (1850).—ALBRECHT, J. f. O. 1862, p. 197.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 298.—SCL. & SALV. Nom. Avium Neotr. p. 38 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 103 (1881).—SCL. Ibis, 1884, p. 159.—CORY, List Bds. W. I. p. 14 (1885).
Quiscalus baritus CASSIN, Pr. Acad. Nat. Sci. Phila. 1866, p. 405.
Hologuiscalus baritus GRAY, Handl. Bds. II, p. 38 (1870).
Quiscalus baritus var. *baritus* BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 213 (1874).

SP. CHAR. *Male:*—Upper plumage lustrous blue-black, showing a tinge of purple when held in the light; underparts black, brownish black on the belly; quills and tail brownish black.

The sexes are described as similar.

Length (skin), 10; wing, 5; tail, 4.50; tarsus, 125; bill, 90.

HABITAT. Jamaica.

Quiscalus luminosus LAWR.

Quiscalus sp. LAWR. Pr. U. S. Nat. Mus. I, p. 191 (1878).
Quiscalus luminosus LAWR. Ann. N. Y. Acad. Sci. I, p. 162 (1878); *ib.* Pr. U. S. Nat. Mus. I, pp. 265, 487 (1878).—OBER, Camps in the Caribbees, p. 247 (1880).—SCL. Ibis, 1884, p. 161.—CORY, List Bds. W. I. p. 14 (1885).

"*Male:*—The general plumage is of a lustrous dark bluish violet; the upper and under tail-coverts are dull dark green; tail dark glossy green; tertials, outer webs of larger quills, and the middle and larger wing-coverts, glossy green like the tail; the inner webs of the larger quills are black; smaller wing-coverts the color of the back; under wing-coverts black; the bill and feet are black; 'iris yellow.'

"*Female:*—Upper plumage of a fine dark brown, light on the crown, the feathers of which are margined with dull pale rust color; the tail is blackish-brown, with a wash of greenish; quills dark brown; the under plumage is dark brownish-ash, lighter on the throat and breast, and fuliginous on the flanks, lower part of abdomen, and under tail-coverts; on the lower part of the neck is a wash of dull rust-color; bill and feet black; 'iris yellow.'" (LAWR., orig. descr.)

Length (skin), 10.50; wing, 4.90; tail, 4.25; tarsus, 1 25; bill, 1.25.

HABITAT. Grenada.

Specimens which I have compared appear to differ very slightly from Santa Lucia specimens of *Q. inflexirostris*. The color-

ation of Grenada specimens is possibly somewhat brighter, but their specific distinctness is questionable.

Quiscalus guadeloupensis LAWR.

Quiscalus guadeloupensis LAWR. Pr. U. S. Nat. Mus. I. pp. 457, 487 (1878).—SCL. Ibis, 1884, p. 160.—CORY, List Bds. W. I. p. 14 (1885).

"*Male:*—The general plumage is of a deep purplish-violet; the wing-coverts have a decided green lustre; tail black, glossed with green; quills black, with a greenish tinge; bill and feet black." (LAWR., orig. descr.)

Female:—Top of head dull brown, becoming darker brown on the back and wings; throat white; a faint moustache-like streak extending from the lower mandible on the sides of the throat; a dull line of buffy-white passing from the upper mandible through the eye; ear-coverts brownish; breast buffy-white; belly dull white, tinged with brownish-olive on the sides; wings and tail dark brown.

Length (skin), 9.75; wing, 5; tail, 4.50; tarsus, 1.25; bill, 1.

HABITAT. Guadeloupe.

Quiscalus gundlachii CASSIN.

Quiscalus barytus D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 120 (1840).—THIENEM. J. f. O. 1857, p. 145.

Chalcophanes barytus CAB. Mus. Hein. I. p. 197 (1851).—GUNDL. J. f. O. 1856, p. 15.

Calcophanes baritus BREWER, Pr. Bost. Soc. Nat. Hist. VII. p. 307 (1860).

Quiscalus gundlachii CASSIN, Pr. Acad. Nat. Sci. Phila. 1866, p. 406.

Holoquiscalus gundlachii GRAY, Handl. Bds. II. p. 38 (1870).

Chalcophanes gundlachii GUNDL. J. f. O. 1874, p. 135.

Quiscalus baritus var. *gundlachii* BD. BWR. & RIDGW. Hist. N. Am. Bds. II. p. 213 (1874).

Quiscalus gundlachi SCL. Ibis, 1884, p. 159.—CORY, List Bds. W. I. p. 14 (1885).

Sp. CHAR. *Male:*—General plumage black, with purplish and bluish reflections; wings and tail showing greenish or bluish reflections when held in the light.

Length (skin), 11.50; wings, 6; tail, 5; tarsus, 1.55; bill, 1.25.

HABITAT. Cuba.

Quiscalus niger (BODD.).

Oriolus niger BODD. Tabl. Pl. Enl. p. 31 (1783).

Quiscalus barita SALLÉ, P. Z. S. 1857, p. 232.

Quiscalus niger CASSIN. Pr. Acad. Nat. Sci. Phila. 1886, p. 407.—SCL. Ibis, 1884, p. 159.—CORY, Bds. Haiti & San Domingo, p. 73 (1885); *ib.* List Bds. W. I. p. 14 (1885).

Quiscalus ater BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 94 (1866).—CORY, Bull. Nutt. Orn. Club, VI, p. 153 (1881).—TRISTRAM, Ibis, 1884, p. 168.

Holoquiscalus niger GRAY, Handl. Bds. II, p. 38 (1870).

Quiscalus baritus var. *niger* BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 213 (1874).

SP. CHAR. *Male:*—General plumage lustrous black, showing purple when held in the light; wings and tail black with bluish reflections; bill and feet black.

The sexes are similar.

Length, 10.25; wing, 5.40; tail, 5; tarsus, 1.30; bill, 1.10.

HABITAT. Haiti and San Domingo.

Quiscalus atroviolaceus D'ORB.

Quiscalus atroviolaceus D'ORB. in La Sagra's Hist. Nat. Cuba Ois. p. 121 (1840).—CORY, List. Bds. W. I. p. 14 (1885).

Scaphidurus atroviolaceus GRAY & MITCH. Gen. Bds. II, p. 341.—BP. Consp. I, p. 426 (1850).

Scolecophagus atroviolaceus CAB. Mus. Hein. I. p. 196 (1851); *ib.* J. f. O. 1856, p. 15.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—CASSIN, Pr. Acad. Nat. Sci. Phila. 1866, p. 415.—GUNDL. J. f. O. 1874. p. 134.

? *Chalcophanes quiscalus* GUNDL. J. f. O. 1856, p. 16; *ib.* 1871, p. 288.

Dives atroviolaceus GRAY, Handl. Bds. II, p. 39 (1870).—SCL. Ibis, 1884, p. 152.

SP. CHAR. *Male:*—Entire plumage lustrous black; purplish on the head, back, and breast; bluish on the wings and tail; thighs slightly brownish in some specimens; bill and feet black.

Length (skin), 9.25; wing, 5; tail, 4; tarsus, 1.05; bill, .75.

HABITAT. Cuba.

FAMILY CORVIDÆ.

GENUS Corvus LINN.

Corvus LINNÆUS. Syst. Nat. I, p. 155 (1766).

Corvus leucognaphalus DAUD.

Corvus leucognaphalus DAUD. Tr. d'Orn. II, p. 231 (1800).—SALLÉ, P. Z. S. 1857, p. 232.—TAYLOR, Ibis, 1864, p. 168.—BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 94 (1866).—SUNDEV. Oefv. K. Vet. Akad. Förh. 1869, p. 598.—BD. BWR. & RIDGW. Hist. N. Am. Bds.

II, p. 234 (1874).—SCL. & SALV. Nom. Avium Neotr. p. 40 (1873).—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 214 (1878).—CORY, Bull. Nutt. Orn. Club, VI, p. 153 (1881); *ib.* Bds. Haiti & San Domingo, p. 74 (1885); *ib.* List Bds. W. I. p. 14 (1885).

Frugilegus leucognaphalus GRAY, Handl. Bds. II, p. 13 (1870).

Microcorax leucognaphalus SHARPE, Cat. Bds. Brit. Mus. III, p. 49 (1877).

SP. CHAR. *Male:*—General plumage black, with faint bluish and purple reflections in the light; feathers of the throat having the ends separated in hair-like filaments; basal portion of the body-feathers white; bill and legs black.

The sexes are similar.

Length, 18; wing, 12; tail, 8; tarsus, 2.20; bill, 2.20.

HABITAT. San Domingo and Porto Rico.

Specimens from Porto Rico differ somewhat from those from San Domingo, but I am of the opinion it would not be wise to separate them specifically. It is possible they represent good geographical races. The San Domingo bird is blacker, and shows brighter bluish and purplish reflections when held in the light. If it should be thought best to separate them, I would propose the name *dominicensis* for the San Domingo form.

Corvus jamaicensis GMEL.

Corvus jamaicensis GMEL. Syst. Nat. I, p. 367 (1788).—GOSSE, Bds. Jam. p. 209 (1847).—DENNY, P. Z. S. 1847, p. 38.—ALBRECHT, J. f. O. 1862, p. 202.—SCL. Cat. Am. Bds. p. 146 (1862).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 300.—SCL. & SALV. Nom. Avium Neotr. p. 40 (1873).—BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 234 (1874).—A. & E. NEWTON, Handb. Jamaica, p. 103 (1881).—CORY, List Bds. W. I. p. 14 (1885).

Frugilegus jamaicensis GRAY, Handl. Bds. II, p. 13 (1870).

Microcorax jamaicensis SHARPE, Cat. Bds. Brit. Mus. III, p. 48 (1877).

SP. CHAR. *Male:*—General color very dark brown, blackish brown on head and throat; basal portions of most of the feathers gray; wings and tail dark brown, showing slight purplish reflections when held in the light; bill and legs black.

The sexes are similar.

Length (skin), 15.75; wing, 8.80; tail, 6.20; tarsus, 1.90; bill, 1.85.

HABITAT. Jamaica.

Corvus solitarius WURT.

Corvus solitarius WÜRT. Naumannia, II, p. 55.—BP. Compt. Rend. 37, p. 829.—CORY, Bds. Haiti & San Domingo, p. 75 (1885); *ib.* List Bds. W. I. p. 14 (1885).

Corvus palmarum "WÜRT. Reis. p. 73."

Corvus jamaicensis SALLÉ, P. Z. S. 1857, p. 232.—BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 94 (1886).

Frugilegus solitarius GRAY, Handb. Bds. II, p. 13 (1870).

Microcorax solitarius SHARPE, Cat. Bds. Brit. Mus. III, p. 49 (1877).

SP. CHAR. *Male:*—General plumage black, with a purple gloss to the feathers; coverts and primaries black; tail black, outer surface showing a tinge of purple; bill and legs black.

The sexes are similar.

Length, 15; wing, 10; tail, 6; tarsus, 1.75; bill, 1.75.

HABITAT. Haiti and San Domingo.

Corvus nasicus TEMM.

Corvus nasicus TEMM. Pl. Col. II, p. 413 (1820-39).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 290 (1866); *ib.* J. f. O. 1874, p. 137.—BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 234 (1874).—CORY, List Bds. W. I. p. 14 (1885).

Corvus americanus LEMB. Aves Cuba, p. 65 (1850).

Corvus jamaicensis CAB. J. f. O. 1856, p. 16.—THIENEM. J. f. O. 1857, p. 152.—GUNDL. J. f. O. 1859, p. 296; *ib.* 1861, p. 414.

Frugilegus nasicus GRAY, Handl. Bds. II, p. 13 (1870).

Microcorax nasicus SHARPE, Cat. Bds. Brit. Mus. III, p. 49 (1877).

SP. CHAR. *Male:*—General plumage glossy black, showing a purplish tinge; basal portion of feathers grayish; nasal bristles short.

The sexes are similar.

Length (skin), 17; wing, 10.75; tail, 7.60; tarsus, 1.90; bill, 2.35.

HABITAT. Cuba.

Corvus minutus GUNDL.

Corvus minutus GUNDL. Journ. Bost. Soc. Nat. Hist. VI, p. 315 (1852).—CAB. J. f. O. 1856, p. 97.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 290 (1866); *ib.* J. f. O. 1874, p. 139.—ALLEN, Bull. Mus. Comp. Zool. II, p. 297.—BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 234 (1874).—CORY, List Bds. W. I. p. 14 (1885).

Frugilegus minutus GRAY, Handl. Bds. II, p. 13 (1870).

Colœus minutus SHARPE, Cat. Bds. Brit. Mus. III, p. 29 (1877).

SP. CHAR. *Male:*—Entire plumage glossy black, showing purple reflections on the back and wings; underparts glossy black, the purple reflections slightly perceptible when held in the light; basal portion of feathers on the body smoky gray; bill and feet black.

Length (skin), 15; wing, 10.35; tail, 6; tarsus, 2; bill, 1.80.

HABITAT. Cuba.

"*Cyanocorax pileatus*," recorded from Jamaica, "probably a caged bird escaped," is a South American species. First given by Gosse (Bds. Jam. p. 308, 1847), and cited by later authors.

Corvus ossifragus has been recorded from Cuba, but I find no record of its actual capture. Dr. Gundlach writes me that the bird does not occur there.

FAMILY TYRANNIDÆ.

GENUS **Elainia** SUNDEV.

Elainia SUNDEVALL, Ornithol. System, p. 89 (1836).

Elainia martinica (LINN.).

Muscicapa martinica LINN. Syst. Nat. I, p. 325 (1766).—GMEL. Syst. Nat. I, p. 930 (1788).—LATH. Ind. Orn. II, p. 483 (1790).

? Muscicapa albicapilla VIEILL. Ois. Am. Sept. I, p. 66 (1807).

Myiobius martinicus GRAY, Gen. Bds. I, p. 249, Sp. 27 (1846).

Tyrannula martinica BP. Consp. I, p. 190 (1850).—CASSIN, Pr. Acad. Nat. Sci. Phila. 1860, p. 375.

Elainea riisii SCL. P. Z. S. 1860, p. 313.—NEWTON, Ibis, 1860, p. 307.—GRAY, Handl. Bds. I, p. 352 (1869).—SUNDEV. Oefv. K. Vet. Akad. Förh. 1869, p. 584.—SCL. P. Z. S. 1870, p. 834.

Elainea martinica TAYLOR, Ibis, 1864, p. 169.—GRAY, Handl. Bds. I, p. 352 (1869).—SCL. P. Z. S. 1871, p. 271; *ib.* 1874, p. 175.—PELZ. Ibis, 1873, p. 113.—SCL. & SALV. Nom. Avium Neotr. p. 48 (1873).—LAWR. Pr. U. S. Nat. Mus. I, pp. 59, 191, 270, 257, 458, 487 (1878). ALLEN, Bull. Nutt. Orn. Club, V, p. 166 (1880).—LISTER, Ibis, 1880, p. 41.—GRISDALE, Ibis, 1882, p. 489.—CORY, List Bds. W. I. p. 15 (1885).

SP. CHAR. *Male:*—General plumage above brownish olive; feathers on the head having the basal portions white, forming a concealed white patch on the crown; throat gray; breast gray, slightly tinged with olive; sides, flanks, and crissum pale olive, mixed with whitish on the middle of the belly; under wing-coverts pale yellowish; wings

and tail dark brown, some of the primaries delicately edged with yellowish white on the outer web, more broadly so on the basal portion of the inner webs, secondaries tipped with the same color; wing-coverts tipped with yellowish white, forming two imperfect wing-bands.

The sexes are similar.

Length (skin), 6.50; wing, 3.25; tail, 3; tarsus, .87; bill, .35.

HABITAT. Lesser Antilles.

Elainia fallax Scl.

Elainea fallax Scl. P. Z. S. 1861, p. 76; *ib.* Cat. Am. Bds. p. 217 (1862).—Albrecht, J. f. O. 1862, p. 199.—Gray, Handl. Bds. I, p. 352 (1869).—Scl. & Salv. Nom. Avium Neotr. p. 48 (1873).—A. & E. Newton, Handb. Jamaica, p. 107 (1881).—Cory, List Bds. W. I. p. 15 (1885).

SP. CHAR.—"Dusky olive green; wings and tail fuscous, edged externally with olivaceus. The coverts and the secondaries widely margined externally with greenish white; pileum subcrested, interiorly white; beneath yellowish; the throat washed with olivaceus; bill dusky horn color, whitish at base; feet black.

"Length, 5.2; wing, 2.7; tail, 2.5; tarsus, .75." (Sclater, orig. descr. transl.)

HABITAT. Jamaica.

Elainia cotta Gosse.

Elainea cotta Gosse, Ann. N. H. 2d ser. III, p. 257 (1849).—Albrecht, J. f. O. 1862, p. 198.—Scl. Cat. Am. Bds. p. 218 (1862).—March, Pr. Acad. Nat. Sci. Phila. 1863, p. 289.—Gray, Handl. Bds. I, p. 352 (1869).—Scl. & Salv. Nom. Avium Neotr. p. 48 (1873).—A. & E. Newton, Handb. Jamaica, p. 107 (1881).—Cory, List Bds. W. I p. 15 (1885).

SP. CHAR. *Male:*—General plumage above grayish olive; top of head brown; a partially concealed patch of bright yellow on the crown; throat grayish; underparts pale yellowish white; pale yellow on the belly; wings and tail olive brown; secondaries narrowly edged with yellowish.

The sexes are similar.

Length (skin), 5.25; wing, 2.65; tail, 2.40; tarsus, .55; bill, .38.

HABITAT. Jamaica.

Genus Pitangus Swains.

Pitangus Swainson, Zool. Journ. III, p. 165 (1828).

Pitangus caudifasciatus (D'ORB.).

Tyrannus caudifasciatus D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 82 (1840).—GOSSE, Bds. Jam. p. 177 (1847).—GUNDL. Journ. Bost. Soc. Nat. Hist. VI, p. 318 (1852).—CAB. J. f. O. 1855, p. 478.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 288.—GUNDL. J. f. O. 1872, p. 424.

Pitangus caudifasciatus SCL. P. Z. S. 1861, p. 76; *ib.* Cat. Am. Bds. p. 222 (1862).—ALBRECHT, J. f. O. 1862, p. 199.—GRAY, Handl. Bds. I, p. 357 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 50 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 107 (1881).—CORY, List Bds. W. I. p. 15 (1885).

SP. CHAR. *Male:*—Top and sides of the head, including the ear-coverts, dark brown; a concealed patch of bright orange yellow; back brownish gray; some specimens showing a slight tinge of rufous on the upper tail-coverts; under wing-coverts very pale yellow; underparts white, slightly tinged with ash on the breast and sides; under tail-coverts white; tail-feathers having the basal half of the inner webs of all except the two central feathers pale yellowish white, and all the feathers narrowly tipped with white; outer tail-feather edged with white on the outer web.

The sexes are similar.

Length (skin), 8; wing, 4; tail, 3.45; tarsus, .88; bill, .90.

HABITAT. Cuba and Jamaica.

Pitangus taylori SCL.

Pitangus taylori SCL. Ibis, 1864, p. 169.—GRAY, Handl. Bds. I, p. 357 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 50 (1873).—CORY, List Bds. W. I. p. 15 (1885).

Tyrannus (*Pitangus*) *taylori* BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 249 (1866).

Tyrannus taylori SUNDEV. Oefv. K. Vet. Akad. Förh. 1869, p. 599.—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 193 (1878).

SP. CHAR. *Male:*—Upper surface dark olive brown, darkest on the head; concealed portions of the feathers on the crown yellow in front, succeeded by white, forming a crown patch half yellow and half white, variable in different specimens; underparts grayish; throat white; quills and tail dark brown; the primaries showing a faint rufous edging on the basal portion of the outer web, generally lacking on the first, second, and third; inner webs of primaries and secondaries edged with pale yellowish white; under tail-coverts white; tail olive brown; the outer web of the outer primary showing a faint edging of dull white.

The sexes are similar.

Length (skin), 8.50; wing, 4.25; tail, 3.25; tarsus, .75; bill, 90.

HABITAT. Porto Rico.

Pitangus bahamensis BRYANT.

Tyrannus caudifasciatus BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 108 (1859).

Pitangus bahamensis BRYANT, Pr. Bost. Soc. Nat. Hist. IX, p. 279 (1864). GRAY, Handl. Bds. I. p. 357 (1869).—CORY, Bds. Bahama I. p. 102 (1880); *ib.* List Bds. W. I. p. 15 (1885).

SP. CHAR. *Male:*—Above gray, with a tinge of olive on the back; top of the head, including the eyes, dark slate color, concealing a patch of bright orange yellow upon the crown; underparts ashy white, shading into an olive tinge upon the flanks, and pale yellow upon the abdomen and crissum; wings dark brown, edged with yellowish white, the coverts with pale brown; under wing-coverts pale yellow; tail dark brown; outer webs of first two and tips of rest brownish white; upper tail-coverts edged with rufous; bill and feet black.

The female is similar to the male.

Length, 8.10; wing, 4.20; tail, 3.50; tarsus, .80; bill, .96.

HABITAT. Bahamas.

Pitangus gabbii LAWR.

Pitangus gabbii LAWR. Ann. N. Y. Lyc. Nat. Hist. XI, p. 288 (1876).—CORY, Bull. Nutt. Orn. Club, VI, p. 153 (1881); *ib.* Bds. Haiti & San Domingo, p. 76 (1885); *ib.* List Bds. W. I. p. 15 (1885).

SP. CHAR. *Male:*—Top of the head and cheeks dark brown, the feathers concealing a patch of bright orange yellow; back brown, lighter than the head, and becoming still lighter towards the rump; wings and tail brown; the primaries heavily edged with rufous on the outer edge; some of the secondaries showing pale white on the edges; wing-coverts and tail-feathers showing rufous edgings; inner webs of primaries and secondaries, and some of the under wing-coverts edged with yellowish white, giving the under surface of the closed wing a pale yellowish white color; entire under surface white; bill and legs black.

The sexes are similar.

Length, 7.50; wing, 4; tail, 3.35; tarsus, .85; bill, .85.

HABITAT. Haiti and San Domingo.

GENUS Empidonax CABAN.

Empidonax CABANIS, "Journ. für Ornith. III, p. 480 (1855)."

Empidonax nanus LAWR.

Empidonax nanus LAWR. Ibis, 1875, p. 386.—CORY, Bds. Haiti & San Domingo, p. 82 (1885); *ib.* List Bds. W. I. p. 15 (1885).

SP. CHAR.—"Above dull greenish olive, darker on the crown, and brighter on the rump: tail dark brown, the outer web of the lateral feather pale fulvous; smaller wing-coverts the color of the back; the middle and larger coverts are brownish black, ending with white, forming two bars across the wings; the quill-feathers are dark brown, the third and fourth primaries are narrowly edged with greyish white, the inner quills, just perceptibly edged with light rufous; under lining of wings very pale yellow; throat greyish white; breast, abdomen, and under tail-coverts pale whitish fulvous; thighs light brown; upper mandible brown, the under, whitish horn color, dusky on the sides; tarsi and toes brownish black.

"The first primary is abnormally short, measuring but 1 5-16 inches; third quill longest; tail emarginate, length, 4⅜ inches; wing, 2 3-16; tail, 2; bill, ⅜; tarsus, 11-16." (LAWR. l. c., orig. descr.)

HABITAT. San Domingo.

Empidonax acadicus (GMEL.).

Muscicapa acadica GMEL. Syst. Nat. I. p. 947 (1788).
Muscicapa pusilla LEMB. Aves Cuba, p. 40 (1850).
Myiarchus pusilla BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba)?
Empidonax acadicus GUNDL. Repert. Fisico-Nat. Cuba, I, p. 240 (1865); *ib.* J. f. O. 1872, p. 427 (Cuba).—CORY, List Bds. W. I. p. 15 (1885).

Recorded from Cuba.

GENUS Contopus CABAN.

Contopus CABANIS, "Journ. für Ornith. III, p. 479 (Nov. 1855).

Contopus pallidus (GOSSE).

Myiobius pallidus GOSSE, Bds. Jam. p. 166 (1847).
Blacicus pallidus SCL. P. Z. S. 1861, p. 77.—ALBRECHT, J. f. O. 1862, p. 199.—GRAY, Handl. Bds. I, p. 363 (1869).
Contopus pallidus SCL. Cat. Am. Bds. p. 231 (1862).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 290.—SCL. & SALV. Nom. Avium Neotr. p. 52 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 107 (1881).—CORY, List Bds. W. I. p. 15 (1885).
Contopus caribæus var. *pallidus* BD. BWR. & RIDGW. Hist. N. Am. Bds II, p. 351 (1874).

SP. CHAR. *Male:*—General plumage above olive brown, darkest on the head; rump tinged with rufous; wing-coverts edged with rufous, forming two wing-bands; underparts dull grayish olive, slightly.

tinged with rufous; throat pale; wings and tail dark brown; upper mandible dark brown; lower mandible pale.

The sexes are similar.

Length (skin), 5; wing, 2.62; tail, 2.20; tarsus, .60; bill, .45.

HABITAT. Jamaica.

Contopus latirostris (VERR.).

Myiobius latirostris VERR. Nouv. Arch. Mus. Bull. II. p. 22 (1866).—SCL. P. Z. S. 1871, p, 271.

Contopus latirostris SCL. & SALV. Nom. Avium Neotr. p. 52 (1873).—ALLEN, Bull. Nutt. Orn. Club, V, p. 166 (1880).—CORY, List Bds. W. I. p. 15 (1885).

SP. CHAR. *Male:*—General plumage above dark olive; chestnut on the rump and upper tail-coverts; underparts rufous chestnut, palest on the throat; wings and tail dark brown, the latter faintly tipped with buffy white; upper mandible brown; lower mandible yellowish.

The sexes are similar.

Length (skin) 5.25; wing, 2.30; tail, 2.45; tarsus, .38; bill, .40.

HABITAT. Santa Lucia.

Contopus bahamensis (BRYANT).

Empidonax bahamensis BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 109 (1859).—GRAY, Handl. Bds. I, p. 361 (1869).

Contopus caribæus var. *bahamensis* BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 352 (1874).

Contopus bahamensis CORY, Bds. Bahama I. p. 101 (1880); *ib.* List Bds. W. I. p. 15 (1885).

SP. CHAR. *Male* (winter):—Above brownish olive, becoming darker upon the crown; a nearly complete circle of white around the eye, broken above; lores ashy; below pale yellow, with a faint tinge of olive; wings dark brown; under coverts pale orange yellow; coverts, secondaries, and tertiaries brownish white, the coverts forming two distinct bands upon the wing; tail dark brown, lighter on the outer feathers; legs and upper mandible black; lower mandible pale, becoming darker at tip. One specimen taken had the yellow of the breast much brighter and deeper, the crissum much brighter, the olive markings heavier, and the under wing-coverts *pinkish*.

Female resembles the male.

Length, 5.35; wing, 2.80; tail, 2.60; tarsus, .58; bill, .60.

HABITAT. Bahamas.

Contopus hispaniolensis (BRYANT).

Tyrannula carribæa var. *hispaniolensis* BRYANT. Pr. Bost. Soc. Nat. Hist. XI, p. 91 (1866).
Blacicus caribæus var. *hispaniolensis* GRAY, Handl. Bds. I. p. 363 (1869).
Contopus carribæus var. *hispaniolensis* BD. BWR. & RIDGW. Hist. N. Am. Bds. II. p. 351 (1874).
Contopus frazeri CORY, Bull. Nutt. Orn. Club, VIII, p. 94 (1883).
Sayornis dominicensis CORY, Bull. Nutt. Orn. Club, VIII, p. 95 (1883).
Contopus hispaniolensis CORY, Bds. Haiti & San Domingo, p. 81 (1885); *ib.* List Bds. W. I. p. 15 (1885).

SP. CHAR. *Male:*—General plumage grayish olive; feathers of the crown dark brown, edged with olive; throat ashy, becoming olive on the sides of the breast, and yellowish brown on the abdomen and crissum; wing-coverts pale at the tips, forming two very dull wing-bands; secondaries very narrowly edged with pale brownish white; tail brown; under wing-coverts pale yellowish brown.

The sexes are similar.

Length, 5.50; wing, 3; tail, 2.70; tarsus, .58; bill, .52.

HABITAT. Haiti and San Domingo.

Contopus virens (LINN.).

Muscicapa virens LINN. Syst. Nat. I, p. 327 (1766). — D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 86 (1840).
Myiarchus virens BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).
Contopus virens GUNDL. Repert. Fisico-Nat. Cuba, I, p. 239 (1865); *ib.* J. f. O. 1872, p. 424 (Cuba).—CORY, List Bds. W. I. p. 15 (1885).

Accidental in Cuba.

GENUS Sayornis BONAP.

Sayornis BONAPARTE. "Coll. Delattre, p. 87 (1854)."

Sayornis phœbe (LATH.).

Muscicapa phœbe LATH. Ind. Orn. II, p. 489 (1790).
Muscicapa fusca GMEL. Syst. Nat. I, p. 931 (1788).—LEMB. Aves Cuba, p. 41 (1850).
Muscicapa lembeyei GUNDL. Journ. Bost. Soc. Nat. Hist. VI, p. 314 (1852) (Cuba).
Anlanax fuscus GUNDL. J. f. O. 1856, p. 1 (Cuba).
Myiarchus lembeyii BREWER, Pr. Bost Soc. Nat. Hist. VII, p. 306 (1860) (Cuba).

Aulanax lembeyei Gundl. Repert. Fisico-Nat. Cuba, I, p. 240 (1865); *ib.* J. f. O. 1872, p. 427 (Cuba).
Sayornis fusca Cory, List Bds. W. I. p. 15 (1885).
Recorded from Cuba.

Genus **Myiarchus** Caban.

Myiarchus Cabanis, "Fauna Peruana, 1844–46, p. 152."

Myiarchus validus Cab.

Tyrannus crinitus Gosse, Bds. Jam. p. 186 (1847).
Tyrannula gossii Bp. Consp. I, p. 186 (1850).—Kaup. P. Z. S. 1851, p. 53.
Myionax validus Cab. et Hein. Mus. Hein. II, p. 78 (1859).
Myiarchus validus Cab. Orn. Not. II, p. 351.—Scl. P. Z. S. 1861, p. 76.—Albrecht, J. f. O. 1862, p. 199.—March, Pr. Acad. Nat. Sci. Phila. 1863, p. 288.—Scl. & Salv. Nom. Avium Neotr. p. 52 (1873).—Bd. Bwr. & Ridgw. Hist. N. Am. Bds. II, p. 331 (1874).—A. & E. Newton, Handb. Jamaica, p. 107 (1881).—Cory, List Bds. W. I. p. 15 (1885).

Sp. Char. *Male:*—General plumage above dark olive; brownish olive on the head; upper tail-coverts rufous; throat gray; belly dull yellow; wings dark brown, the feathers heavily bordered with rufous chestnut; wing-coverts edged with dull rufous; outer tail-feathers pale rufous, second feather having the inner web rufous, the outer web brown, the brown gradually widening on the third and fourth feathers, the central feathers being pale olive brown, faintly edged with rufous.

The sexes are similar.

Length (skin), 8; wing, 4; tail, 4; tarsus, 1; bill, .75.

Habitat. Jamaica.

Myiarchus stolidus (Gosse).

Myiobius stolidus Gosse, Bds. Jam. p. 168 (1847).
Tyrannula stolida Kaup, P. Z. S. 1851, p. 51.
Myiarchus stolidus Cab. J. f. O. 1855, p 479.—Scl. P. Z. S. 1861, p. 77; *ib.* Cat. Am. Bds. p. 234 (1862).—Albrecht, J. f. O. 1862, p. 199.—March, Pr. Acad. Nat. Sci. Phila. 1863, p. 288.—Scl. & Salv. Nom. Avium Neotr. p. 52 (1873).—A. & E. Newton, Handb. Jamaica, p. 107 (1881).—Cory, List Bds. W. I. p. 15 (1885).
Kaupornis stolidus Gray, Handl. Bds. I, p. 358 (1869).

Sp. Char. *Male:*—Head dark brown, shading into grayish olive on the back; throat grayish; belly and under tail-coverts dull yellow; wings brown; primaries showing a very slight tinge of rufous on

the edges of the basal half of the outer webs; secondaries edged with dull white; under wing-coverts pale yellow; tail brown, the second feather slightly edged with rufous on the inner web, heavier on the third and fourth.

The sexes are similar.

Length (skin), 7.25; wing, 3.50; tail, 3.25; tarsus, .85; bill, .75.

HABITAT. Jamaica.

This species differs from *M. phœbe* by the brighter yellow of the belly and in being very slightly larger.

Myiarchus phœbe (D'ORB.).

Tyrannus phœbe D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 84 (1840).
Muscicapa sagræ, GUNDL. Journ. Bost. Soc. Nat. Hist. VI, p. 313 (1852).
Myiarchus stolidus, BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860). —GUNDL. Repert. Fisico-Nat. Cuba, I. p. 239 (1865).
Tyrannula (*Myiarchus*) *stolida* (var. *lucaysiensis*) BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 66 (1866).
Myiarchus phœbe GRAY, Handl. Bds. I. p. 358 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 52 (1873).—CORY. List Bds. W. I. p. 15 (1885).
Myiarchus stolidus var. *phœbe* COUES, Pr. Acad. Nat. Sci. Phila. 1872, p. 78.—BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 332 (1874).
Myiarchus sagræ GUNDL. J. f. O. 1872, p. 424.
Myiarchus stolidus var. *leucaysiensis* CORY, Bds. Bahama I. p. 100 (1880).

SP. CHAR. *Male:*—Above brownish olive, becoming darker upon the head, and shading into rufous on the rump; underparts ashy white, shading into yellowish upon the abdomen and crissum: wings dark brown, the coverts tipped and edged with dull white, forming two wing-bands; the basal half of the outer webs of the primaries, except the first two, edged with rufous; some of the secondaries edged with white; under wing-coverts pale yellowish white; tail dark brown, the feathers bordered with rufous upon the inner webs, very faintly upon the two central ones; legs and bill black.

Length (skin), 7.20; wing, 3.25; tail, 3.20; tarsus, .75; bill, .65.

HABITAT. Cuba and Bahamas.

This species differs from *M. dominicensis* in lacking the bright rufous edging on the primaries. Both *M. stolidus* and *M. dominicensis* have the belly yellow instead of dull white, as in *M. phœbe*.

Myiarchus antillarum (BRYANT).

Tyrannus (*Myiarchus*) *antillarum* BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 249 (1866).

Myiarchus antillarum Sundev. Oefv. K. Vet. Akad. Förh. 1869, p. 599?—Gray, Handl. Bds. I, p. 364 (1869).—Scl. & Salv. Nom. Avium Neotr. p. 52 (1873).—Gundl. Anal. Soc. Esp. Hist. Nat. VII, p. 194 (1878).—Cory, List Bds. W. I. p. 15 (1885).

Myiarchus stolidus var. *antillarum* Coues, Pr. Acad. Nat. Sci. Phila. 1872, p. 79.—Bd. Bwr. & Ridgw. Hist. N. Am. Bds. II, p. 332 (1874).

Sp. Char. *Male:*—Top of head olive brown, shading into grayish olive on the back; rump slightly tinged with rufous; throat and breast ashy gray; belly white; a faint tinge of yellowish white on the crissum; quills and tail dark brown, showing a slight rufous edging; secondaries edged with dull white; a narrow mark of pale rufous tipping the inner webs of some of the tail-feathers.

The sexes are similar.

Length (skin), 7; wing, 3; tail, 3; tarsus, .85; bill, .65.

Habitat. Porto Rico.

This species differs from *M. dominicensis* by the absence of the rufous tail-markings and in the belly being white. It is nearest allied to *M. phœbe*, and closely resembles that species, but is easily distinguished from it by the absence of the broad rufous edging on the inner webs of the tail-feathers. *M. phœbe* also shows a tinge of yellow on the belly, which is faint or wanting in *M. antillarum*.

Myiarchus oberi Lawr.

Myiarchus erythrocercus Scl. P. Z. S. 1871, p. 271.

Myiarchus oberi Lawr. Ann. N. Y. Acad. Sci. I, p. 48 (1878); *ib.* Pr. U. S. Nat. Mus. I, pp. 59, 191, 217, 487 (1878).—Allen, Bull. Nutt. Orn. Club, V, p. 166 (1880).—Scl. Ibis, 1880, p. 74.—Cory, List Bds. W. I. p. 15 (1885).

Sp. Char. *Male:*—"Pileum, nape, and sides of the head dark umber-brown upper plumage dark olive-brown, upper tail-coverts edged with dull ferruginous; two middle tail-feathers blackish brown, the other feathers are colored the same, except on the outer two-thirds of the inner webs, where they are bright ferruginous; outer web of lateral feather and ends of the others, ash color; quills brownish black, the primaries narrowly edged with dark ferruginous; the outer secondaries are margined with very pale rufous, and the other secondaries with pale yellowish white; wing-coverts dark brown, ending with pale ashy tinged with rufous; under wing-coverts pale, dull yellow; inner margins of quills light salmon-color; lores, throat, upper part

of breast and sides clear bluish-gray, lower part of breast, abdomen and under tail-coverts pale yellow; bill and feet black.

"Length, 8⅝ in.; wing, 3⅞; tail, 3⅜; tarsus, ⅞; bill from front, 13-16.

"The female does not differ in plumage from the male." (LAWR. l. c., orig. descr.)

HABITAT. St. Vincent, Dominica, Santa Lucia, and Grenada.

Myiarchus sclateri LAWR.

Myiarchus sclateri LAWR. Pr. U. S. Nat. Mus. I. p. 357 (1878).—CORY, List Bds. W. I. p. 15 (1885).

SP. CHAR. *Male:*—"The upper plumage is deep dark olive, the head above blackish brown. Unfortunately, the only feathers left in the tail are the outer four on one side; the outermost two are dark brown and without rufous edgings on the inner webs; the other two feathers are brownish-black, with their inner webs edged with light rufous for about one-quarter their width; quills dark brown, their inner webs bordered with pale salmon-color; wing-coverts edged with dull white; under wing-coverts light ash, with just a tinge of yellow; throat and breast of a clear cinereous gray; abdomen and under tail-coverts dull pale yellow; sides cinereous; bill and feet black.

"Length (fresh), 7½ in.; wing, 3¾; tail, 3½; tarsus, 1; middle toe and claw, 15-16; hind toe to end of claw, ⅝." (LAWR. l. c., orig. descr.)

HABITAT. Martinique.

Myiarchus dominicensis (BRYANT).

Tyrannula stolida var. *dominicensis* BRYANT, Pr. Bost. Soc. Nat. Hist. XI. p. 90 (1866).

Myiarchus stolidus var. *dominicensis* GRAY, Handl. Bds. I, p. 358 (1881).

Myiarchus stolidus CORY, Bull. Nutt. Orn. Club, VI, p. 153 (1881).

Myiarchus ruficaudatus CORY, Bull. Nutt. Orn. Club. VIII, p. 95 (1883).

Myiarchus dominicensis CORY, Bds. Haiti & San Domingo, p. 79 (1885); *ib.* List Bds. W. I. p. 15 (1885).

SP. CHAR. *Male:*—Crown dark olive brown, becoming lighter on the back, and showing a more decided grayish tinge; breast ashy; belly, crissum, and under wing-coverts pale yellow; wing-coverts edged with brownish white, forming two dull wing-bands; tertials broadly edged with yellowish white; primaries, except the first, narrowly edged with rufous on the outer web, showing a broader and much paler edging of the same color on the inner webs of the same feathers; two central tail-feathers dark brown, all the rest having more than half of the inner web rufous to the tip; bill and feet black.

The sexes are similar.

Length, 6.50; wing, 3.10; tail, 3; tarsus, .85; bill, .75.

HABITAT. Haiti and San Domingo.

Myiarchus crinitus (LINN.).

Muscicapa crinita LINN. Syst. Nat. I. p. 325 (1766).
Myiarchus crinitus CAB. J. f. O. 1855, p. 479 (Cuba).—GUNDL. Repert. Fisico-Nat. Cuba, I. p. 239 (1865); *ib.* J. f. O. 1872, p. 426 (Cuba).—COUES, Pr. Acad. Nat. Sci. Phila. 1872, p. 63 (Cuba).
Tyrannus crinitus BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).

Accidental to Cuba.

GENUS Blacicus CABAN.

Blacicus CABANIS, J. f. O. 1885, p. 480.

Blacicus barbirostris (SWAINS.).

Tyrannula barbirosiris SWAINS. Phil. Mag. 1827, p. 367.
Myiobius tristis GOSSE, Bds. Jam. p. 167 (1847).—ALBRECHT, J. f. O. 1862, p. 199.
Blacicus tristis CAB. J. f. O. 1855, p. 480.—SCL. Cat. Am. Bds. p. 324 (1862).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 290.—GRAY, Handl. Bds. I, p. 363 (1869).
Blacicus barbirostris, SCL. P. Z. S. 1871, p. 85.—SCL. & SALV. Nom. Avium Neotr. p. 53 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 108 (1881).—CORY, List Bds. W. I. p. 15 (1885).

SP. CHAR. *Male*:—Top of the head dark brown; pale brownish olive on the back; a faint tinge of rufous on the upper tail-coverts; throat gray; rest of underparts pale yellow; wings and tail dark brown; the secondaries and tail-feathers with pale edgings.

The sexes are similar.

Length (skin), 5.75; wing, 2.75; tail, 2.50; tarsus, .75; bill, .55.

HABITAT. Jamaica.

Blacicus caribæus (D'ORB.).

Muscipeta caribæa D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 92 (1840).—GUNDL. Journ. Bost. Soc. Nat. Hist. VI, p. 316 (1852).
Blacicus caribæus BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—GUNDL. Repert Fisico-Nat. Cuba, I, p. 240 (1865); *ib.* J. f. O. 1872, p. 426.—GRAY, Handl. Bds. I, p. 363 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 53 (1873).—CORY, List Bds. W. I. p. 15 (1885).

SP. CHAR. *Male:*—Top of head brownish olive, the feathers showing a narrow streak of dark brown on the shafts, rest of upper plumage dull olive; throat gray, with a faint tinge of yellowish near the

breast; belly dull orange rufous, shading into olive on the sides and flanks; quills and tail dark brown; the secondaries with pale edges.

The sexes are similar.

Length (skin), 6; wing, 2.75; tail, 2.25; tarsus, .60; bill, .60.

HABITAT. Cuba.

Blacicus brunneicapillus LAWR.

Blacicus brunneicapillus LAWR. Ann. N. Y. Acad. Sci. I, p. 161 (1878); *ib.* Pr. U. S. Nat. Mus. I, pp. 59, 487 (1878).—CORY, List Bds. W. I. p. 15 (1885).

SP. CHAR. *Male:*—Top of head dark brown; back dull brown, tinged with olive; throat grayish, tinged with rufous on the breast, and becoming pale rufus brown on the belly and under tail tail-coverts; wings and tail brown.

The sexes are similar.

Length (skin), 5.25; wing, 2.50; tail, 2.45; tarsus, .60; bill, .48.

HABITAT. Dominica.

Blacicus blancoi GUNDL.

Blacicus blancoi GUNDL. J. f. O. 1874, p. 311; *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 195 (1878).—CORY, List Bds. W. I. p. 15 (1885).

SP. CHAR. *Male:*—Top of the head olive brown, becoming grayish olive on the back; throat dull white; breast and underparts pale rufous; under wing-coverts rufous; wings and tail pale brown; shafts of the tail-feathers reddish brown; upper mandible dark brown; lower mandible pale.

The sexes are similar.

Length (skin), 5.50; wing, 3; tail, 2.50; tarsus, .50; bill, .53.

HABITAT. Porto Rico.

GENUS Tyrannus CUVIER.

Tyrannus "CUVIER Leç. d'Anat. Comp. 1799–1800, tabl. ii."

Tyrannus rostratus SCL.

Tyrannus rostratus SCL. Ibis, 1864, p. 87; *ib.* P. Z. S. 1871, p. 272.—SCL. & SALV. Nom. Avium Neotr. p. 53 (1873).—LAWR. Pr. U. S. Nat. Mus. I, pp. 60, 191, 234, 240, 271, 358 (1878).—RIDGW. Smiths. Misc. Coll. XIX, p. 470 (1880).—ALLEN, Bull. Nutt. Orn. Club, V, p. 196 (1880).—CORY, List Bds. W. I. p. 16 (1885).

SP. CHAR. *Male:*—Bill large and heavy; upper plumage slaty-gray, tinged with brownish on the back; a concealed patch of scarlet-orange on the head; ear-coverts dark; throat dull white, grayish on the breast and sides of the body; belly and under tail-coverts dull white, faintly tinged with yellow; under wing-coverts pale yellowish-white; quills and tail brown; secondaries edged with dull white.

The sexes are similar.

Length (skin), 9; wing, 4.50; tail, 4; tarsus, .72; bill, 1.05; width of bill at base, .60.

HABITAT. Lesser Antilles.

Tyrannus magnirostris D'ORB.

? Tyrannus matutinus VIEILL. Enc. Méth. 1823, p. 850.

Tyrannus magnirostris D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 80 (1840).—SCL. Cat. Am. Bds. p. 236 (1862).—BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 66 (1866).—SCL. & SALV. Nom. Avium Neotr. p. 53 (1873).—RIDGW. Smiths. Misc. Coll. XIX, p. 464 (1880).—CORY, Bds. Bahama I. p. 99 (1880); *ib.* List Bds. W. I. p. 16 (1885).

Melittarchus magnirostris CAB. J. f. O. 1855, p. 447.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—GUNDL. Repert. Fisico-Nat. Cuba I, p. 238 (1865); *ib.* J. f. O. 1872, p. 421.

SP. CHAR. *Male:*—Larger than *T. rostratus.* Head dark brown; ear-coverts and cheeks blackish brown; a concealed patch of bright orange on the crown; back slaty-brown; entire underparts white, showing a faint tinge of yellowish in some specimens; under wing-coverts pale yellow; quills and tail brown; some of the primaries and all of the secondaries edged with dull white; wing-coverts edged with dull white.

The sexes are similar.

Length (skin), 10; wing, 5; tail, 4; tarsus, .85; bill, 1.25; width of bill at base, .65.

HABITAT. Cuba. Inagua?

Tyrannus melancholicus VIEILL.

Tyrannus melancholicus VIEILL. Nouv. Dict. XXXV, p. 48, D'ORB. Voy. Ois, p. 311.—SCL. Cat. Am. Bds. p. 235 (1862) —SCL. & SALV. Nom. Avium Neotr. p. 53 (1873).—BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 315 (1874).—LAWR. Pr. U. S. Nat. Mus. I, pp. 271, 487 (1878).—RIDGW. Smiths. Misc. Coll. XIX, p. 473 (1880).—CORY, List Bds. W. I. p. 16 (1885).

Muscicapa despotes LICHT. Doubl. p. 55 (1823).

Muscicapa furcata SPIX, Av. Bras. II, p. 15 (1825).

Tyrannus crudelis SWAINS. Quart. Journ. Sc. XX, p. 275 (1826).
Tyrannus furcatus MAX. Beitr. III. p. 884 (1831).
Tyrannus albogularis BURM. Syst. Ueb. II, p. 465.
Laphyctes melancholicus CAB. & HEIN. Mus. Hein. II, p. 76 (1859).

SP. CHAR. *Male*:—Top of head gray; a concealed patch of reddish orange; back dull grayish-olive; throat grayish white, shading into yellowish-olive on the breast, and having the entire rest of underparts bright yellow; under wing-coverts pale yellow; quills and tail brown, showing dirty white edgings on some of the coverts and secondaries.

Length (skin), 8; wing, 4.30; tail, 3.50; tarsus, .75; bill, .75.

HABITAT. Grenada.

Tyrannus dominicensis (GMEL.).

Tyrannus dominicensis BRISS. Orn. II, p. 394, pl. 38, fig. 2 (1760).—RICH. List 1837.—GOSSE, Bds. Jam. p. 169 (1847).—BAIRD, Cat. N. Am. Bds. No. 125 (1869).—NEWTON, Ibis, 1859, p. 146.—CASSIN, Pr. Acad. Nat. Sci. Phila. 1860, p. 375.—ALBRECHT, J. f. O. 1862, p. 199.—SUNDEV. Oefv. K. Vet. Akad. Förh. 1869, pp. 584, 599.—BD. BWR. & RIDGW. Hist. N. Amn. Bds. II, p. 319 (1874).—ALLEN, Bull. Mus. Comp. Zool. II, p. 300 (1881).—RIDGW. Pr. U. S. Nat. Mus. VII, p. 172 (1884).—CORY, Bull. Nutt. Orn. Club, VII, p. 153 (1881); *ib.* Bds. Haiti & San Domingo, p. 77 (1885); *ib.* List Bds. W. I. p. 16 (1885).

Lanius tyrannus var. β. *dominicensis* "GMEL. Syst. Nat. I. p. 202 (1788)."

Tyrannus griseus VEILL. Ois. Am. Sept. I. p. 76, pl. 46 (1807).—SWAINS. Quart. Journ. Sci. XX, p. 276 (1826).—GRAY, Gen. Bds. I, p. 247 (1844).—BP. Consp. I, p. 192 (1850).—SCL. Cat. Am. Bds. p. 236 (1862).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 287.—TAYLOR, Ibis, 1864, p. 169.—LAWR. Ann. Lyc. N. Y. VIII, p. 99 (1864).—BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 90 (1866).—CORY, Bds. Bahama I. p. 99 (1880); *ib.* Bull. Nutt. Orn. Club, VI. p. 153 (1881).—A. & E. NEWTON, Handb. Jamaica, p. 108 (1881).

Tyrannus matutinus "VIEILL. Enc. Méth. p. 850 (1823)."—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 83 (1840).—GRAY, Gen. Bds. I. p. 247 (1844).—SALLÉ, P. Z. S. 1857, p. 232.

Muscicapa dominicensis AUD. Orn. Biog. II, p. 392, pl. 46 (1834); *ib.* Bds. Am. I, p. 201 (1840).

Tyrannus tiriri "TEMM. Tabl. Méth. p. 24 (1836)."

Tyrannulus dominicensis JARD. Contr. Orn. p. 67 (1850).

Melittarchus dominicensis CAB. J. f. O. 1855, p. 478; *ib.* Mus. Hein. II, p. 80 (1859).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).

Melittarchus griseus GUNDL. J. f. O. 1872, p. 422; *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 192 (1878).

SP. CHAR. *Male:*—Above grayish-ash, darkest on the head; a dull black patch behind the eye; underparts whitish, ashy on the sides of the breast; wings brown, secondaries and coverts edged with dull white; under wing-coverts pale yellow; tail brown, feathers faintly tipped and edged with dull white; upper tail-coverts edged with pale rufous.

The sexes are similar.

Length, 8.50; wing, 4.40; tail, 4.10; tarsus, .75; bill, .90.

HABITAT. Bahamas, Cuba, Haiti, San Domingo, Jamaica, Porto Rico, St. Thomas, St. Croix, St. Bartholomew, and Sombrero.

Tyrannus tyrannus (LINN.).

Lanius tyrannus LINN. Syst. Nat. p. 94 (1758).

Lanius tyrannus var. *carolinensis* et *ludovicianus* GMEL. Syst. Nat. I, p. 302 (1788).

Tyrannus intrepidus? SALLÉ, P. Z. S. 1857, p. 232 (San Domingo).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba); *ib.* BRYANT, XI, p. 90 (1867) (San Domingo).

Tyrannus pipiri GUNDL. J. f. O. 1872, p. 423 (Cuba)?

Tyrannus carolinensis CORY, List Bds. W. I. p. 16 (1855).

Accidental in Cuba. Porto Rico? San Domingo?

Tyrannus sulphurascens Herz. P. V. Württemberg is an undetermined species mentioned by Cabanis (J. f. O. 1857, p. 241). It was originally described as occurring in Cuba and Haiti. Gundlach, in writing of this species (J. f. O. 1871, p. 268), thinks there has been a mistake in the locality.

(*To be continued.*)

BREEDING HABITS OF THE BLACK VULTURE.

BY WALTER HOXIE.

BUZZARD ISLAND lies in a bend between Ladies' Island and Wassa Island, and is about three miles in a direct line from Beaufort, South Carolina. It is about an acre and a half in extent and surrounded by boggy marsh, beyond which, at low tide, stretch

wide flats of gray mud liberally dotted with banks of 'coon oysters.' There is no landing which deserves the dignity of being so called, but at high tide a boat can be brought near enough to either the north or south side to enable a not over nice man to make his way to terra firma. Once there the adventurous collector is a moderately secure prisoner until the next high tide, although I have known one or two instances of parties under the stimulous of sandflies and hunger, making a successful attempt to 'bog' across to Red Bluff on the Ladies' Island shore opposite. On the Wassa side there is a deep channel at all times.

From time immemorial this has been a 'bird island.' A strong odor of guano pervades the air, and the soil is sometimes used as a fertilizer on neighboring plantations. It is a frequent breeding resort of the Snowy Herons, which, however, often desert it for years at a time, as is the wont of this fickle bird. Not so the Vultures. Perhaps a dozen or twenty pairs breed here regularly, the most of them being the Black species (*Catharista atrata*), though a pair or two of the Turkey Buzzards may be observed nearly every year. The portion of the island most frequented by them is the west end. Here, under a dense growth of yucca, I have taken nineteen eggs in one afternoon, and seen at the same time five or six pairs of newly hatched young There is never the slightest attempt at forming a nest, or even excavating a hollow. The eggs are laid far in under the intertwining stems of the yucca, and in the semi-shadows are quite hard to be seen. The parent birds, however, have a habit of always following the same path in leaving and approaching their precious charge, and after a little experience I learned to distinguish these traces so well that I seldom failed to follow them up and secure the coveted specimens. This track is seldom if ever straight. It winds under and around the armed stems, and, the difference in bulk between a man and a Buzzard being considerable, the pointed leaves find a good many of a fellow's weak points before he reaches his prize. Sometimes, after a half-an-hour's crawling and peering into recesses, being gored and stabbed on every side, the reward is only a pair of uncouth, downy 'squabs,' whose welcome would give a skunk big odds in the defensive art, for, as a friend of mine once said, "Little Buzzards are like a good rule, and work both ways." "Better," quoth I, "for they work both ways at once." What an object F. was, though, on that afternoon! He had come suddenly

upon a well grown pair of chicks, and was so well wedged in among the yucca stems that he could neither make his escape nor defend himself. When he did get out he was streaming with filth, excrement, and blood, and his language was simply awful.

Quite rarely I have found eggs on other parts of the island, and once or twice in completely exposed situations, with not even an attempt to get under the protection of an overhanging bush. Possibly these belonged to young birds which had still much to learn in regard to the ways of house-keeping. I have also occasionally found isolated nests upon the outer Hunting Islands. In these latter cases the eggs have always been easy to find for, being among clean, sylvan surroundings the collector need only follow his nose—if it is a good one—and success is certain.

Both sexes assist in the work of incubation. A week or ten days often elapses between the deposition of the two eggs, but I have never observed over a day's difference in the time of hatching. Indeed, I have never found a bird sitting on a single egg. The period of incubation is very nearly thirty days, but I have not decided this quite to my satisfaction as yet. I have never taken more than two eggs in a set, but my friend, Mr. Alfred Cuthbert, of this place, took a set of three in 1884. I am not certain that two broods are not sometimes raised. I have myself taken eggs only from April 2 to May 26, according to the record now before me, but I have heard of young observed as late as August. No description need be given here of such well known eggs. One of each type is found in every pair, and my theory is that all birds which lay but two eggs at a time produce one male and female offspring. I once raised a pair of young Black Vultures which proved to be male and female. In this case the male was hatched from the long, evenly spotted egg. I cut one of his toes before his companion had emerged, so "those babies were not mixed up." In conclusion let me say that I have never yet found any Vultures' eggs under fallen logs or in hollow stumps. Of course I do not intend to cast any imputation upon the published statements in regard to their nidification in such places, but simply to record the fact that in this locality they fail to take advantage of any such surroundings.

Frogmore, P. O.,
St. Helena Id., S. C.

ON A NEW RACE OF THE FIELD SPARROW FROM TEXAS.

BY ARTHUR P. CHADBOURNE.

Spizella pusilla arenacea, var. nov. WESTERN FIELD SPARROW.

CH. SUBSP.—Similar to *S. pusilla* but with the rufous replaced by brownish-ash, and of slightly larger size, with decidedly longer tail and somewhat heavier bill.

♀ (No. 2141, author's collection. Laredo, Southern Texas, Nov. 12, 1885; F. B. Armstrong, collector): Back and rump pale brownish-ash, the feathers of the back with dark shaft streaks, which, particularly on the scapulars, are edged with light chestnut. Crown with two lateral stripes of pale sandy brown, that are but little darker than the back and are continuous with the ash of the nape, superciliary lines, and middle of the crown. Sides of head brownish-ash, except on the auriculars, which are pale chestnut. Underparts white, tinged with ashy-brown, deepest on the breast, flanks, and under tail-coverts. All wing-feathers edged with pale brown or white. Otherwise similar to *S. pusilla*.

Dimensions: Wing, 2.50; tail, 2.96; culmen, .35.

Migratory or perhaps resident in winter in Southern Texas. Summer habitat unknown.

The bird described above is very different from any eastern specimen I have ever examined. The whole bird is very much paler and the dark streaks on the back less prominent, owing to their lacking the bright rufous edging, and to their being confluent with the lighter ground color. The ash of the throat, sides of the head, flanks and under-tail coverts is tinged with a sandy or brownish-ash instead of rufous, and there is a broad band of ash on the pileum and over the eye. The bill is stouter than in eastern birds and the tail decidedly longer.

Of the six specimens collected at Laredo during the past fall and winter, only two present the characters described above. One of the remaining four is, however, almost a perfect intermediate (No. 2226, author's collection), but the other three can be exactly matched *in color* by Massachusetts skins. All of the Texan skins, ten in number, that I have been able to examine, tend to be less rufescent than eastern birds and to have a longer tail, but unfortunately these characters do not seem to be quite constant, at any rate not in the migratory birds.

S. pusilla arenacea (average of two specimens), tail, 2.88; wing, 2.52.

S. pusilla from Texas (average of ten specimens), tail, 2.86; wing, 2.61.

S. pusilla from Massachusetts (average of ten specimens), tail, 2.62; wing, 2.43.

S. wortheni (type specimen), tail, 2.60; wing, 2.68.

Through the courtesy of the National Museum I have been able to examine the type of *Spizella wortheni*, and I find that it has no trace whatsoever of the median stripe through the crown, or of the chestnut auriculars; there is but one wing-band, and the general effect is as dark as in *S. socialis arizonæ*. The wing is also longer and the tail shorter than in the new race. In short, the two birds seem to have no close relationship.

ON THE AVI-FAUNA OF PINAL COUNTY, WITH REMARKS ON SOME BIRDS OF PIMA AND GILA COUNTIES, ARIZONA.

BY W. E. D. SCOTT.

*With annotations by J. A. Allen.**

I.

By referring to a map of Arizona the reader will see that Tucson lies on the 111th meridian west of Greenwich and on the 32d parallel of latitude north. The country under consideration in the present paper extends north of Tucson eighty miles, and south forty miles; and, taking the 111th meridian as a median line, twenty-five miles each side of that line gives about its east and west boundaries. This area is therefore one hundred and twenty miles long, in a north and south direction, and fifty miles wide, from east to west. In this parallelogram are one

*A large part of the collection (some 2400 specimens) on which Mr. Scott's paper is based is now in the possession of the American Museum of Natural History, and many other specimens have been submitted to me for inspection. The large series of specimens thus brought together frequently present special points of interest, and the remarks based thereon in the subsequent papers of the present series are added by the kind request of Mr. Scott.—J. A. ALLEN.

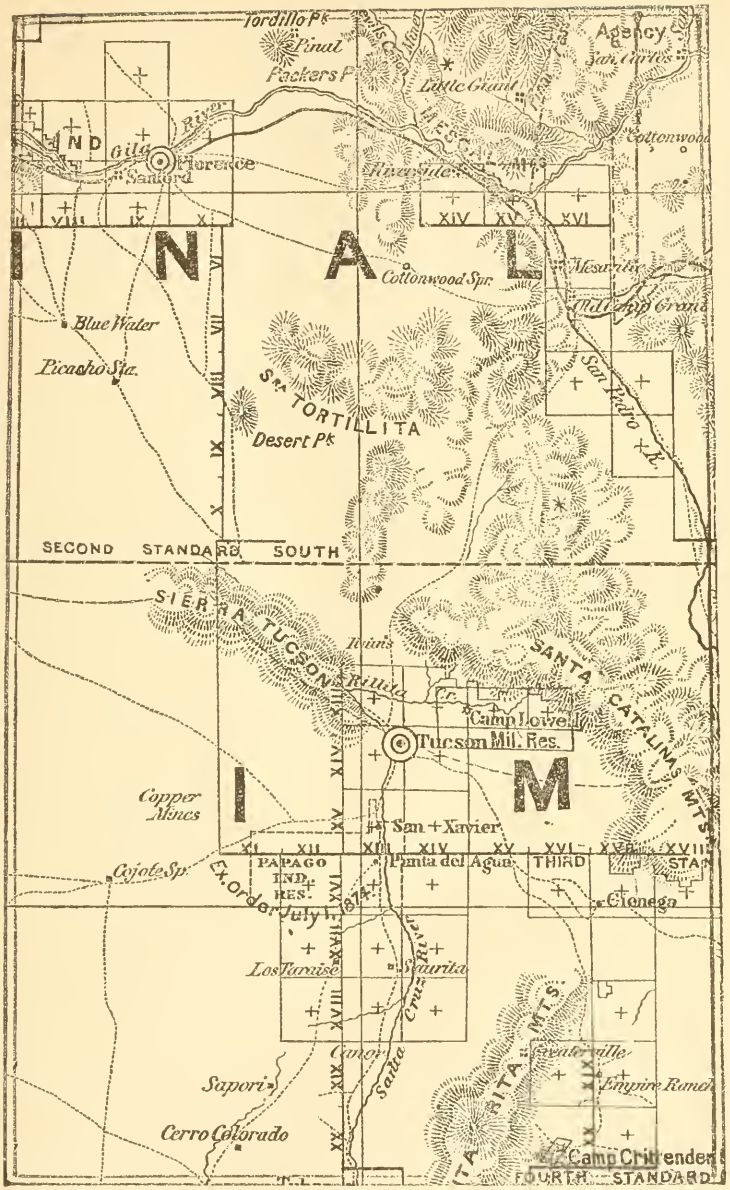
large and two smaller rivers, the Gila being the former and the Santa Cruz and San Pedro the two latter.

Practically one mountain range, the Santa Catalina, forms the backbone of this region. Rising abruptly to the northward and eastward of Tucson, at a distance of from fifteen to twenty miles, it extends in low hills to the Gila River, on the opposite side of which, directly north, are the Mescal Mountains, which terminate in the Pinal range. To the west of Tucson there are no mountains proper in the area under discussion, but very considerable hills break the great plain, and the Barboquivori Mountains are reached at the extreme south-western border. On the southern edge of the area is the Santa Rita range, which is far the most imposing in appearance, though in altitude its highest peaks, as well as those of the Santa Catalinas, do not much exceed eleven thousand feet. Here much work has been done by Mr. H. W. Henshaw, and also by Mr. F. Stephens. I mention this to show the connection of the lists published by these gentlemen with the remarks I shall have presently to offer. .

The several points at which most of my material was obtained are Tucson, Florence, Riverside, the San Pedro slope of the Santa Catalinas, and the headwaters of Mineral Creek, which is just outside of Pinal County, in Gila County. In addition, many notes and items have been accumulated on rides and drives between these various points, and now and again specimens procured on such journeys, where anything of special interest happened to occur.

Let me now briefly describe the general environment of each of the places above mentioned, in order to introduce to those of my co-workers who have not been in this region some of the more salient characteristics that obtain here. To make this more clear and intelligible, a map is presented showing some of the great physical features of the country, and to this constant reference will be made in the following pages. The map is based on one compiled for the use of the General Land Office of the United States, in 1879, under J. A. Williamson, Commissioner.

The region about Tucson, it will be noticed, is a great plain, the altitude of which above the sea does not vary greatly from 2300 feet. During many months of the year this plain is arid, but in the region watered by the Santa Cruz River, cultivation by irrigation is largely pursued: and the same remarks apply to



MAP OF PORTIONS OF PINAL AND PIMA COUNTIES, ARIZONA.

the land immediately in the vicinity of the Rillita, a small stream rising in the Santa Catalina range, and running through the Camp Lowell Military Reservation. It is important to notice in this connection that both of these streams only rise to the surface in places, and except in the spring of the year their course is not continuous, but more like a series of streams that vary from a few yards to several miles in length. For instance, the Santa Cruz River is continuously a considerable stream for at least fifteen miles south of Tucson. About two miles below the town it disappears, rising only in occasional small pools, until the Nine Mile Water Hole is reached, where the stream again comes to the surface, and soon afterward is lost again in the desert between Tucson and the Gila River, which stream it ultimately joins. On the other side of the town, and some fifteen miles east, the Rillita, a small stream, flowing down from the summit of the Catalinas, enters Sabino Cañon. In the spring it is continuous from its source to Camp Lowell, but beyond the Military Reservation to the westward it is lost almost at once; though its course may be plainly traced by the dry bed of the stream, no water is to be seen, except in time of great freshets, until it joins the Santa Cruz at the point indicated on the map.

The vegetation of the great plain of Tucson is as varied as one would naturally look for in a region at points well watered and at others almost a desert. Along the two streams mentioned are fine growths of cottonwood and sycamores, the former green almost the entire year, with occasional black walnuts and alders. While the mesquite is found at intervals, throughout the plain, the finest growth is perhaps near or in the region immediately adjoining the streams; and a grove of these trees of special beauty is to be found on the Santa Cruz River, where that stream passes through the Papago Indian Reservation, south of Tucson.

For long stretches on the more arid portions of the plain are found a number of varieties of cholla, a kind of cactus, reaching often the dimensions of the largest shrubs, or smaller trees. It is perhaps needless to add that they are much branched, and wonderfully repellant with their thousand spines, ready to resist the slightest intrusion; yet they form almost the exclusive nesting place and home of a number of species of birds, as will be presently recorded. Such growths are to be met with particularly just outside of Tucson to the eastward.

Wherever the plain is broken up into small hills, at the beginning of the larger mountains beyond, and sometimes reaching well into the plain itself, the giant cactus is abundant, and though it is quite as common in the most arid country, yet it seems to flourish equally near the streams. The groves of this form of cactus are sometimes of vast extent, and such a one exists just east of the Military Reservation of Camp Lowell. Here the cacti attain wonderful size, many being between twenty-five and forty feet high, and are very close together, the outstretched arms of one not unfrequently almost touching its neighbors. They are of the most wierd shapes, varying from a single straight shaft to a most complicated system of branches or arms, reaching in every conceivable direction. The many trunks and arms are from ten inches to three feet in thickness, and have parallel rows of the sharpest spines protecting them, yet the soft fibre of which these colossal cacti are formed is often riddled by the Woodpeckers, and the holes thus made serve afterward, in other seasons, as admirable nesting places for several kinds of Owls and Flycatchers of the genus *Myiarchus*. Two other forms of plant-life, very characteristic of the region, are generally found in the same region as this giant cereus. One is the palo-verde, a peculiar tree, deserving its name from the intense green of the entire bark from the ground upward, and bearing leaves so small that the tree presents an appearance little varied during the year, save in the spring when it blooms with myriads of minute yellow flowers, that give the appearance of a tree of gold. These trees vary in size from small shrubs to trees of twenty-five feet in height, and are found most abundantly, perhaps, on the first mesas of the foothills, and at other similar altitudes. The other form spoken of is the ocotilla, a large kind of *Euphorbia*, bearing in the spring and early summer from the extremity of each of its branches a cluster of vivid scarlet flowers. There is no trunk or body proper to this shrub, which frequently attains a height of fifteen to twenty feet, but the arms or branches start close to the ground from the root stalk, at an angle of about 45°, and rarely send off any smaller branches.

All of these forms of vegetable life, save the cacti and ocotillas, afford sustenance to great bunches of mistletoe—of course evergreen—the fruit of which forms the favorite food of many kinds of birds, and in its deep, tangled masses numberless bird houses are

built. These are the principal forms of trees and shrubs characteristic of the great plain of Tucson, but there are many others too numerous to bring into consideration in the present papers.

The region of the valley of the Gila River at Florence is very similar to that about Tucson, though the mountains are lower and more distant, while the plains back from the river valley proper are more broken, and generally a little higher in average altitude. The road leading to Riverside from Florence passes through this arid plain, and by a gradual ascent reaches the low mountains west of the former place. The plant and tree forms already described are very characteristic of this entire route, and are very abundant the whole way, until reaching the summit of these low mountains. Here the most conspicuous forms are several kinds of yucca, and the aloe (*Agave americana*) or mescal plant, all of which are common. After passing the summit the road again descends into the valley of the Gila, passing through a hilly region cut by many large arroyas, most of which during the rainy season become running streams. The plants of these low hills are chiefly the different forms of mesquite, but the giant cactus is everywhere present.

The valley of the Gila at Riverside is very narrow, high hills and mountains rising abruptly on either side. The Mescal Mountains to the north of the river are really the higher foothills of the Pinal Range, and the lower hills to the south are offshoots of the Santa Catalina Range. Along the river banks are great groves of cottonwoods and sycamores, and back of these a growth of mesquite and cat-claw, running almost immediately into a mixed vegetation consisting of palo-verde, mesquite, giant cacti, chollas, prickly pears, and ocotillas, the valley beginning to break into low hills and mesas just a little back from the river's edge. The altitude of Riverside, as given by the government survey, is about 2200 feet.

The region at the headwaters of Mineral Creek has an altitude approximating 5000 feet. It is some six miles to the eastward of the divide made by the summit of the Pinal Mountains, where collections were made. Here are some large isolated cottonwoods, many sycamores, and on the small plains and mesas varieties of cat-claw and mesquite; junipers of considerable size form groves, and a variety of the hackberry tree is not uncommon. The flow of water in Mineral Creek is even more desul-

tory than in the Rillita, and it rises permanently to the surface only at isolated points, in the form of springs or water holes.

Having described with so much detail the region of the San Pedro slope of the Santa Catalina Mountains in former papers (see Auk, Vol. II, 1885, pp. 1 and 243) it seems hardly necessary to do more here than direct attention to them. To recapitulate briefly, the mountain range is here very wide, the foothills extending far down — for at least eight miles — from the summit of the main range. These hills, though generally abrupt on the sides, are flat on top, thus forming mesas or tablelands of greater or less extent, one ranging above the other. The cañons between these hills are narrow and deep, and in rainy seasons there is a more or less continuous flow of water through them. The cañon in which my house is situated has been alluded to before as having for a considerable distance an ever flowing stream of water.

To return to the consideration of the area as a whole, there are two well defined rainy seasons. One, beginning early in December and lasting till about the middle of March, is a period of storms rather than a rainy season proper. These storms consist of rain or snow, according to the altitude, but snow is of so rare occurrence on the plain of Tucson, that I can find but one record of a snow storm having reached that locality during the past ten years. This season properly corresponds to the winter of the East. It is succeeded by a period of spring, when the deciduous trees regain their foliage, the plains become green and brilliant with wild flowers. In June, most of these grasses and flowers have ripened and died, and the plain is again brown and withered; and save for the scorching heat and the green leaves of the trees, the country has the appearance of winter. This season lasts for from six weeks to two months.

The second rainy season begins generally rather late in July. The rains are then of almost daily occurrence, beginning soon after mid-day and clearing during the night; are almost always accompanied by thunder and lightning, and continue for from three to six weeks. Coincident with this season of rain is a second spring time, when the grass becomes much more luxuriant in its growth than in March and April, and the flowers quite as abundant, but of more enduring varieties. Some of the larger plants, too, as the ocotilla, having lost their first leaves

during the period of heat, now regain them, and sometimes flower again.

The winds are at times during the wet seasons, particularly in the winter, very violent, both in the mountains and on the plains; and even during the intermediate dry intervals, which comprise a series of cloudless days. There are, especially during the early spring, severe storms of wind, accompanied by clouds of dust and fine sand, in the more arid country. The atmosphere is peculiarly dry and clear at all times, save when rain is falling, but is perhaps most noticeably so directly after a rain or wind-storm.

The temperature on the plains ranges from about 28° Fahr. in the coldest of the winter days to 115° in the summer. These figures, of course, indicate the great extremes. At the point where my house is, in the mountains at an altitude of 4580 feet, the mercury has once this winter (1885–86) reached 18°, but this was on the occasion of a storm of unusual severity. The average temperature here of the winter months is about 50°, and of the summer months 85°.

The Pinal, Santa Catalina, and Santa Rita are the only ranges which have pine forests, and these prevail only at the higher altitudes. The characteristic feature of the vegetation below the pine forests is a belt of evergreen oak, which extends down to a little below 4000 feet on the northern, and not much below 4500 feet on the southern slopes.

The birds of this area, as a whole, may be divided into groups which are partly connected with the three greatly differentiated regions here discussed, namely: birds of the valleys and plains; birds of the oak belt; and birds of the pine regions. Though many species range at different times of the year in common over all of these districts, yet there are others, both resident and migratory, which I have never seen outside of the single area they affect. For instance, Bendire's and Palmer's Thrashers are not to be encountered outside of the valleys and lower plains or mesas. Strickland's Woodpecker and the Arizona Jay are always associated in my mind with the oak belt, for I have never met them beyond its limits; and Grace's Warbler, the Red-fronted Warbler, and the Mexican Crossbill are in the same way, so far as I am aware, confined to the pine woods. Yet of these birds—and all are met with near my house, the extremes being not more than

eight miles apart—Bendire's Thrasher is migratory, while many Palmer's Thrashers are resident; Strickland's Woodpecker is migratory, and the Arizona Jay resident; the two Warblers are strictly migratory, and the Crossbill resident. It will be my effort, therefore, to indicate, in as much detail as possible, the distribution locally of at least the more characteristic species.

The migrations here must be considered as occurring regularly in two ways, primarily a north and south migration, and secondarily, though of almost as much import as the other, a vertical migration. There are many species that doubtless come under both heads, but there are others that are as clearly to be classed in the one or the other of these two categories. For examples of each, reference may be made to the details regarding each species which are to follow.

The breeding period of most species, even in the same locality, is prolonged; and though the number of young in a single brood is limited in many species to two or three, it seems probable that in such species the usual aggregate is reached through the greater number of broods raised, which, in cases to be noted, is at least four during a season. Breeding fairly begins by the middle of February, and of birds nesting then, I have found also freshly laid eggs as late as the first of July. The season of breeding in other species which begin to nest later lasts till late in August.

The collections I have made in this area aggregate a little over four thousand birds. At Florence and Riverside, and in the vicinity of these places, in the spring of 1882, four hundred birds were collected and notes made on that part of the territory. At Mineral Creek, in October and November of the same year, about six hundred birds were added. On the San Pedro Slope of the Santa Catalinas, and incidentally in the valley of the San Pedro, and in the pine forests of the Santa Catalinas, during the past two years, somewhat more than three thousand birds have been obtained; and most of the data in regard to migration, nesting period, and the like have been acquired in this region. Though collections have been made in rather a desultory way, at various times and for short periods, about Tucson, and though constant travel in the vicinity has led to the record of many observations, yet I am greatly indebted to Mr. Herbert Brown, of that place, for many notes on species not met with by me, and for much valua-

ble information on the subject in hand, which I shall always mention in connection with his name.

Finally, all the species recorded in the succeeding papers have actually been obtained by either Mr. Brown or myself, and though a number met with by other workers in the same field have escaped our united efforts, the list will be found to embrace several birds not before recorded from Arizona.

(*To be continued.*)

THE RED CROSSBILL (*LOXIA CURVIROSTRA STRICKLANDI*) IN KANSAS.

BY L. L. DYCHE.

WHILE walking along one of the streets near the State University, Lawrence, Kans., on November 1, 1885, I observed a flock of about twenty plump little birds, about the size of English Sparrows. They were hopping about the road, apparently picking up particles of food. Occasionally they would utter a few chirps and fly to a low tree just over the fence, but only to return and alight in the road again. Some of the birds were red, with dark wings, others were of a gray color showing yellowish green blotches. At that moment, while I stood gazing under the influence of the electrical shock of ornithological pleasure produced by my rare discovery, two gentlemen happened to be passing on their way to church. I pressed them hard with the scientific importance of the situation, and insisted on their watching the birds while I rushed for my gun. I returned in less than five minutes and found the men diligently watching some Sparrows in an old tree near by. I mourned this grievous mishap until November 5, when, during a drizzling rain storm from the northeast, I again observed the birds, apparently the same flock, in the top of a tall tree near the University campus. I was so fortunate this time as to secure four good specimens, two males and two females.

HABITS OF THE BIRDS.— The birds remained in this vicinity (apparently within a mile or two of the University grounds) until

January 26, 1886, at which date I saw them for the last time, just at sunrise, sitting on the top of a tree. Notwithstanding the fact that January, 1886, was the coldest month (mean temp. 14.32°) recorded by Professor Snow, who has kept a record for nineteen years, the birds might be seen almost every day feeding on the hemp stalks near the University. During stormy weather they would take shelter in the cultivated evergreens which stood in neighboring yards. At such times it was possible to approach within a few feet of them, and when disturbed they would only fly to the next tree. When the weather was pleasant, and when they were not feeding on the hemp stalks, the birds would spend most of their time flying from the high trees of one grove to those of another. At night they would roost in the evergreens, apparently preferring the pines. I never saw the birds on the ground but once, and that was when I found them in the road. They remained with us almost three months, during which time I collected forty specimens, twenty males and twenty females. The specimens are in the University Museum. All the birds were dissected and carefully examined in order that their food habits might be accurately ascertained; but not a trace of any kind of food except hemp seed was found in the entire forty specimens.

RARITY OF THE BIRDS IN THE STATE.—Although the Crossbills have been common in this locality during the past three months, the species has never been reported, before this winter, as taken in this State. Mr. V. L. Kellogg reports taking a pair December 23, out of a flock of about a dozen, at Emporia, seventy-five miles southwest of Lawrence. Professor D. E. Lantz reports taking two November 21, at Manhattan, about a hundred miles west. On December 25 I saw a small flock thirty miles west, on the Wakarusa, which I think were of the same species.

IDENTITY OF THE SPECIES.—I have not hesitated to call the birds *stricklandi*, because I think the measurements, particularly those of the length of the bill and its depth at base, prove the birds to be the Mexican form beyond all doubt.

Believing that the measurements of such a large number of specimens from one locality will be of interest to ornithologists for comparison, etc., I give the following carefully prepared list of the forty specimens, representing an equal number of males and females:

	Length.	Alar Extent.	Wing.	Bill to Base.	Depth of Bill at Base.	Upper Mandible Turns to the	Sex.
	6.55	10.75	3.55	.75	.42	Right.	♂
	6.40	10.95	3.60	.72	.40	Right.	♂
	6.75	11.75	3.75	.82	.45	Left.	♂
	7.00	11.25	3.63	.76	.45	Right.	♂
	7.00	11.30	3.75	.79	.46	Right.	♂
	6.70	11.00	3.65	.71	.44	Left.	♂
	6.30	10.70	3.58	.71	.43	Right.	♂
	7.00	11.50	3.75	.76	.43	Right.	♂
	6.30	10.80	3.45	.70	.43	Right.	♂
	6.56	11.37	3.79	.77	.46	Left.	♂
	6.88	11.10	3.75	.78	.48	Right.	♂
	6.60	11.20	3.75	.82	.43	Right.	♂
	6.50	11.00	3.60	.75	.44	Left.	♂
	6.70	11.00	3.65	.75	.41	Left.	♂
	6.70	11.70	3.80	.78	.47	Left.	♂
	7.10	11.55	3.75	.78	.47	Left.	♂
	6.83	10.75	3.60	.76	.48	Left.	♂
	6.50	10.75	3.60	.83	.48	Right.	♂
	6.42	10.85	3.50	.75	.40	Right.	♂
	7.00	11.28	3.65	.83	.47	Right.	♂
	6.55	10.25	3.35	.70	.39	Left.	♀
	5.90	10.00	3.28	.65	.42	Right.	♀
	6.55	10.45	3.47	.73	.45	Left.	♀
	6.90	10.75	3.50	.71	.42	Right.	♀
	6.50	10.94	3.52	.77	.44	Left.	♀
	6.95	11.95	3.50	.77	.42	Left.	♀
	6.60	10.50	3.50	.74	.45	Left.	♀
	6.25	10.60	3.45	.66	.40	Right.	♀
	6.35	10.85	3.53	.78	.46	Left.	♀
	6.45	10.62	3.40	.66	.44	Left.	♀
	6.60	11.62	3.40	.72	.42	Right.	♀
	6.00	10.75	3.56	.73	.45	Left.	♀
	6.25	10.50	3.50	.72	.37	Left.	♀
	6.50	10.70	3.50	.76	.44	Right.	♀
	6.12	10.45	3.50	.73	.42	Right.	♀
	6.75	10.75	3.50	.77	.47	Left.	♀
	6.55	10.85	3.50	.76	.43	Left.	♀
	6.53	11.10	3.53	.78	.47	Right.	♀
	6.10	10.50	3.38	.66	.42	Right.	♀
	6.34	10.65	3.42	.70	.43	Left.	♀
Average. ♂	6.689	11.127	3.657	.766	.445	Right. 20	♂
Average. ♀	6.437	10.739	3.464	.725	.430	Left. 20	♀

[Mr. Dyche has very kindly sent me for examination twenty-nine of the Crossbills above referred to. They are essentially similar to Colorado specimens and considerably smaller than *stricklandi* as represented in Southern Arizona. There can be little doubt that they came into Kansas from the westward, probably from the Rocky Mountains north of the New Mexico line. Under Mr. Ridgway's recent arrangement* they would be

*Proc. Biolog. Soc. Washington, Vol. II, pp. 101-107.

referred to *L. c. bendirei*, but this proposed race was rejected by the A. O. U. Committee in drafting the Check List, and, I believe, wisely.

North American Red Crossbills from whatever locality vary excessively in size as well as color. The largest birds occur in Southern Arizona and Mexico, but in a series of twenty specimens from the former region I find a number which are smaller in every respect than the largest Colorado examples, and several which are also smaller than our largest New England birds.

I have recently examined upwards of one hundred of the latter taken in Northern New England at the height of their breeding season (February). All were shot by the same collector in the course of two or three days and in the same locality. The diversity in general size, size and shape of bill, and color, which they present is enough to convince any one that these characters are subject to a wide range of variation and are not dependent, except within broad limits, on geographical considerations. Three or four of the largest birds are larger, in every way, than the small extremes among the Arizona specimens; many would come within the limits of size established by Mr. Ridgway for *bendirei;* while the remainder would be referable to *minor* (= *americana*), the smallest of the three forms. Between the largest and smallest birds there is a perfect connecting series. There is great diversity in respect to the size and shape of the bill. The mandibles are short and heavy in some specimens, long and slender in others. In some the upper and lower mandibles are nearly equal in thickness (a character ascribed to *stricklandi*), in the majority the upper mandible is much the heavier of the two.

Mr. Ridgway gives *bendirei* as occurring in winter, in Massachusetts *Minor* associates with it at all seasons and both breed together in the same woods in Northern New England. Is it possible to separate them into two races under such conditions? I believe not, for it seems obvious that the variations just referred to are either purely individual or dependent on age—it matters little which in the present connection. Nevertheless, upon dividing all the material before me into two series, one of eastern, the other of western birds, I find that the latter *average* considerably larger, with relatively as well as actually stouter bills. There seems to be a reasonably constant difference in color, also, the western females being grayer with less and duller green or yellowish on the back, breast and rump, the males of a deeper, richer red than the eastern birds.

A consistent and satisfactory arrangement, as it seems to me, would be to refer all eastern birds to *minor* (= *americana*), all western ones to *stricklandi*. In any case Mr. Dyche's specimens, as well as all that I have seen from Colorado, are apparently much nearer related to the *stricklandi* of Southern Arizona than they are to the Crossbill of our eastern coniferous forests.— William Brewster.]

DESCRIPTION OF A NEW NORTH AMERICAN SPECIES OF ARDETTA.

BY CHARLES B. CORY.

Ardetta neoxena, sp. nov.

Sp. Char.—Top of the head, back, and tail dark greenish black, showing a green gloss when held in the light. Sides of the head and throat rufous chestnut, the feathers on the back of the neck showing greenish black tips. Breast and underparts nearly uniform rufous chestnut, shading into dull black on the sides; wing-coverts dark rufous chestnut; under wing-coverts paler chestnut. All the remiges entirely slaty plumbeous. Under tail-coverts uniform dull black.

Total length, 10.80; wing, 4.30; tarsus, 1.40; culmen, 1.80.

Habitat. Florida. Okeechobee region?

In the specimen above described two of the flank feathers on one side are white; but this may be attributed to albinism. There is no trace of a stripe on the sides of the back, as in *A. exilis*. The bird in question is claimed to have been shot in Southwest Florida, and was brought to Tampa with a number of other species, including *A. exilis*, *Anas fulvigula*, and *Ajaja ajaja*. It is without doubt perfectly distinct from any other known species.

RECENT LITERATURE.

Grieve on the Great Auk, or Garefowl. — The bird the portrait of which adorns the title-page of 'The Auk,' has exercised a remarkable attraction on monographers, for not a year has passed since Professor Blasius's exhaustive treatment of the subject, before we receive Mr. Grieve's sumptuous quarto volume on 'The Great Auk, or Garefowl.'*

In order to give the reader an idea of the scope of this work we give the headings of the different chapters into which the book is divided, as follows: I, Introduction; II, The Distribution of the Great Auk—The living bird in its American Habitats; III, The Living Great Auk in its European

*'The Great Auk, or Garefowl | (*Alca impennis Linn.*) | Its History, Archæology and Remains | By | Symington Grieve | Edinburgh | London | Thomas C. Jack, 45 Ludgate Hill | Edinburgh: Grange Publishing Works | 1885. 4to., pp. xii + 141 + App. 58. With 4 plates, several wood-cuts, and a map.

Habitats; IV, The Remains of the Great Auk—Introduction to the subject—Discoveries in North America; V, The Remains of the Great Auk in Denmark and Iceland; VI, British Remains of the Great Auk—Keiss in Caithnessshire; VII, British Remains of the Great Auk (*continued*) —Oronsay in Argyllshire; VIII, How was Caistealnan-Gilleau formed, and to what period does it probably belong? IX, English Remains of the Great Auk; X, The Habits of the Garefowl, and the Region it lived in; XI, Information Regarding existing Remains of the Great Auk, with Lists of all recorded Skins, Bones and Eggs—Tables giving the Totals of each Variety of Remains in different Countries—Also Information about Skins, Bones, Eggs, Imitation Remains, and Illustrations of Remains; XII, The uses to which the Great Auk was put by Man; XIII, The Names by which the Great Auk has been known, and their Philology: XIV, The Period during which the Great Auk lived—Conclusion.

To us the chapters treating of the remains preserved in the museums and of the former habitat of this remarkable bird are of principal interest. The author gives the total number of skins known as 79 or 81, the uncertainty being due to doubt whether there be one specimen or none in Iceland, and whether five or six in the United States. Professor Wilh. Blasius enumerates only 77 "mit einiger Sicherheit."* Later in 1884 the same author† made known an additional specimen, that of Mr. Vian in Paris, thus raising the number to 78. It would, therefore, appear as if Mr. Grieve had made at least one new specimen known, but such is not the case, for by some sort of a mistake the author gives *two* specimens as being in the "Smithsonian Institute," Washington, while the fact is, that there is only one specimen in Washington, viz., that in the National Museum under the care of the Smithsonian Institution.

As to the specimen doubtfully referred to Iceland, we can offer no suggestions, but through the kindness of Mr. J. A. Allen we are able to add some valuable information in regard to the example in the New York Museum, and also to the mythical mutilated skin, which "has been said" to be in the same Museum. The origin of the myth that there are two specimens in the New York Museum is evident from the following footnote in Mr. Grieve's book (App. p. 19): "Professor Newton, writing to me on 15th April, 184 , says that D. G. Elliot, according to his own account, bought the specimen without the feet, formerly in Mechlenburg's possession, for the Central Park Museum in New York. Accordingly, there must now be two specimens in that museum, though this point requires still to be cleared up.—W. Blasius." In order to clear up this point I addressed a letter to Mr. D. G. Elliot, who, under date of December 26, 1885, very kindly wrote me as follows: "Yours of 24th is at hand. Somewhere among my papers I have a full account of the specimen of *Alca impennis* now in the Central Park Museum, but I cannot lay my hands upon it at present, and as I am about to leave for the South for a month's absence, I shall have to answer your questions as best I may without it.

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* Journ. f. Orn. 1884, p. 114 and p. 165.

† Tagebl. Naturf. Versamml. Magdeburg, 1884 (p. 321).

"1. I never bought but one specimen.

"2. That is the one in the Museum, and I bought it from Mr. Cook.

"3. I never heard of a second specimen and do not believe there was one.

"4. To the best of my recollection, my specimen was without feet, though I am not positively sure, as it is now a good many years since I purchased it."

Simultaneously I had asked Mr. J. A. Allen, the Curator of Mammals and Birds of the New York Museum, for information, and as his answer goes a good way to explain the case, I take the liberty to reprint it in full, as follows: "There is only one specimen of the Great Auk in the American Museum of Natural History, and this Museum* has never had any other. The reference by Professor Newton to an imperfect specimen, without feet, obtained by Mr. D. G. Elliot, doubtless relates to the Labrador Duck, of which there is here just such a specimen, received from Mr. Elliot. It was mounted by the taxidermist, J. G. Bell, of this city, who supplied the feet of some other Duck. This specimen is still in the museum, and has its defects and the character of the restoration indicated in writing on the bottom of the stand."

To make perfectly sure, I requested Mr. Allen to examine the specimen of the Great Auk carefully, and here is his answer, dated January 4, 1886: "In accordance with your request I have carefully examined the specimen in relation to its feet, and so far as I can judge the feet belong to the specimen, and are not those of some other species, as has been presumed. They are certainly not the feet of any Loon or Duck, or any other water bird with which I am acquainted, and correspond with what I should expect to find the feet of the Great Auk to be. So far as I am able to judge they are genuine. Indeed, I am unable to see any indication that they are not a part of the skin itself."

It seems now unquestionable, that the bird in the New York Museum is not the skin "without the feet and breast plumage," which was sold by Herr Mechlenburg in Flensburg to Siemsen, a merchant in Reykjavik, Iceland (Grieve, App. p. 11). Nor can it be the skin with only one leg, which was in Bryce Wright's possession, if this really be a different one from the above (Journ. f. Ornith. 1884, p. 114). The 'defect skin' is, consequently, not in New York, but the question still remains, what has become of it? Once I thought that I had the solution, as in one of his letters to me Mr. Allen says: "Mr. Cory of Boston, has, I think, a Great Auk in his collection which is in part 'made up.'" I am in the position, however, to positively declare, that this is not the missing skin, either. Mr. Charles B. Cory has, a few moments ago, orally informed me, that what he possesses is only *a fragment of skin of the breast, and a few odd feathers* said to be from the Great Auk, which he bought some years ago of a dealer a little outside of London, and for which he paid £2. So much for the specimens in American Museums. There are, consequently, in this country only four specimens, as enumerated by Dr. Blasius, and not five or six.

* Referred to above as the Central Park Museum.

In regard to the other specimens mentioned in Mr. Grieve's Monograph, I shall only note, that the specimen which formerly was in Mr. Nicolai Aall's collection in Naes, near Arendal, Norway, is now in the Museum of the University in Christiania, and that it has been remounted recently.

Both in Blasius's list and in that of Mr. Grieve, the "Harvard University Museum" (= Museum of Comparative Zoölogy, Cambridge, Mass.) is credited with the possession of two skeletons "prepared from mummy Great Auks obtained at Funk Island during 1864." Mr. J. A Allen, then curator at the Museum, wrote me under March 18, 1885, as follows:—"We have but *one* specimen of the Great Auk, and that is to be rated as a skeleton. It is, in reality, a so-called 'mummy,' and is from the Funk Islands. Only a portion of the bones have yet been laid bare—one wing and one leg—the rest is still covered with the dried flesh. In some unaccountable way it is commonly and erroneously supposed that we have two of these Great Auk mummies."

Mr. Grieve's Monograph is accompanied by a 'Chart showing the supposed distribution of the Great Auk or Garefowl.' We shall not pass an opinion on the manner in which "the supposed limit of region in which the Great Auk lived" has been drawn generally; but when the author includes the entire Norwegian coast, from the Swedish frontier to North Cape, with all its islands and fjords, he certainly has not been aware of Prof. Robert Collett's investigations, who, as early as 1872, in an article written in the English language (Remarks on the Ornithology of Northern Norway), showed that there was no conclusive evidence of a single example of this species having occurred within the confines of the country. Since then Prof. Collet has made it probable, that the Garefowl has really *once* been seen in Norway, but in a locality considerably to the east of the limits of Mr. Grieve's map (Mitth. Ornith. Ver. Wien, 1884, Nos. 5 and 6).

Altogether Mr. Grieve's book forms an attractive volume, full of interest and useful information. But on looking over the long series of monographs and monographic essays devoted to the Great Auk, we are justified in raising the question: Might not the time, ingenuity, and money invested on them have been applied to other branches of ornithology with greater results? Or, are there not questions of more importance to solve than whether there are 78 or 79 skins of the Great Auk in existence? If the same amount of painstaking scrutiny and exactness had been directed towards elucidating geographical distribution, individual variation, etc. etc., the benefit to our science might have been considerably greater.—L. S.

Meves on the Size and Color of the Eyes of European Birds.—We have just received what appears to be a book filling a gap in ornithological literature, viz., Wilhelm Meves's List of European Birds* with indications

* Die Grösse und Farbe der Augen aller Europäischen Vögel, sowie der in der palæarctischen Region vorkommenden Arten in systematischer Ordnung nach Carl J. Sundevall's Versuch einer natürlichen Aufstellung der Vogelklasse von Wilhelm Meves. Halle a. S., Verlag von Wilhelm Schlüter. (No date on title page, but preface dated "Januar 1886.") 8vo., pp. iv + 74.

of the size and the color of their eyes. The author enumerates 649 'species' (or rather 648, as No. 475 goes out as synomymous with No 482), the names of which are given in Latin and German (often with one or two synonyms appended). In every instance the size of the eye is given in millimeters, separate for ♂ and ♀, if different, followed by a careful statement of the color of the iris and how it varies according to sex and age. About sixty per cent of the statements are based upon the author's own examinations, while for the rest the colors given are taken from the best available sources, and the size estimated, in which case the figures are included in brackets. Anybody who has noticed how our taxidermists generally select eyes at hap-hazard when mounting birds, and how many an otherwise nicely stuffed bird has become an atrocious caricature by the disproportionate size of the eyes, cannot fail to see that this book must be of great service to taxidermists, especially to those of Europe; but until a similar work on American birds be published, it will also be valuable to the taxidermists of this country, for out of a total number of 650 species, Mr. Meves has measured about 150 forms which are absolutely identical or nearly so with birds holding a place in North American ornithological lists. We are happy to say, however, that a similar work is already in preparation for North American birds, giving not only the colors of the irides, but also including measurements of the eyes. Meves's book will at the same time, serve as a handy 'check list' of European (western palæarctic) birds, although the nomenclature is sadly 'eclectic,' arbitrary rejections of old names, because "regelwidrig," as the German ornithologists are pleased to say, being very frequent, and so also the retention of a number of preoccupied names; in some cases the latest innovations have been adopted, while in others the author is "conservative where, *according to Mr. Seebohm*, he ought to be conservative." His splitting of genera seems equally inconsistent (the genus *Picus* is entirely lost, after the fashion of Sundevall, while *Hirundo* is retained). In some instances already corrected mistakes are perpetuated (as *Pœcila kamtschatkensis* Bonap.=Sibirische Sumpfmeise, p. 10), while on the other hand more recent additions to the European Fauna have been overlooked, as, for instance, *Sitta whiteheadi* Sharpe. We note, that like Sundevall, he follows Linnaei 10th edition (1758), but rejects trinomials.—L. S.

'Water Birds of North America'—'A Few Corrections' Rectified.—Dr. J. G. Cooper's long list of so-called 'corrections' to the 'Water-Birds of North America,' in the January number of the 'The Auk,' calls for comment from me in only a few cases, I having exercised no right of revision or supervision whatever over Dr. Brewer's portion of the work. The particular cases with which I am concerned are the following:—

Mareca americana.—Dr. Cooper says that this species "has not been found breeding in the United States." If he will turn to page 622 of my 'Zoology of the 40th Parallel,' he will see that on June 11, 1869, I collected a nest with 10 eggs of this species on Rabbit Island, in the Great Salt Lake.

Pelecanus californicus.—Dr. Cooper's remarks are apparently intended to discredit the supposed distinctness of the Florida and California Brown Pelicans. He says: "The adult plumage obtained by me at San Diego does not differ from that of Florida birds, but the colors of the bill, pouch, etc., differed from both the Florida and Lower California birds, being intermediate, and quite variable." Upon reference to page 143, Vol. II of the 'Water Birds,' it will be seen that *P. californicus* is described as being "Similar to *P. fuscus*, but decidedly larger, the gular sac, *in the breeding season*,* reddish, instead of greenish," etc., it being explicitly stated that the supposed difference in the color of the nape might "not prove sufficiently constant to serve as a diagnostic character." It will be observed that Dr. Cooper does not mention the date or season when his specimens were obtained, thus depriving his statement of "colors of bill, pouch, etc.," of any weight whatever. Much material examined by me since the publication of the 'Water Birds,' while negativing the doubtfully suspected difference in the color of the nape, fully confirms the asserted great and constant difference in size between *P. fuscus* and *P. californicus*, and, so far as the condition of the specimens show anything as to fresh colors of the soft parts, does not disprove the stated difference in this respect.

Cymochorea melania and **C. homochroa.**—There is no more occasion for confounding these exceedingly distinct species than for confounding the Raven and Crow, the difference in size and other particulars being quite as great. The two species are so concisely distinguished in the 'Water Birds' (Vol. II, p. 407), that it is unnecessary to further particularize here.

Puffinus stricklandi.—Dr. Cooper's remarks respecting this species embody several errors of fact as well as wrong deductions. In the first place, nothing can be more certain than that *P. stricklandi* is NOT the young of *P. major*, or that no species of Petrel is, in the same individual, dusky when young and light-colored when adult. (See Proc. U. S. Nat. Mus., Vol. V, p. 658.) In the second place, there is no evidence whatever that *P. major* itself occurs in any part of the Pacific Ocean. In short, it is very evident that the species which Dr. Cooper has mistaken for *P. stricklandi* is *P. griseus*; and it is remarkable that this did not occur to him, since it is carefully described and compared with *P. stricklandi* on the very next page.† To unite under one specific name such obviously distinct species

* Not italicized in the original.

† The length of wing given by Dr. Cooper for his specimen, 12 1-4 inches, is not very greatly in excess of the maximum of the same measurement in *P. griseus*, as given in my diagnosis; and, considering the fact that his measurement was probably taken from a fresh or at least recently skinned specimen, while mine was of a thoroughly dried skin, would readily account for the discrepancy, which might also result from a different method of measurement. There is, however, in my description an unfortunate contradiction of the statement that "*P. griseus* is smaller in all its measurements than *P. stricklandi*" in the figures given immediately above. This is explained by the fact that the statement was written when only the type specimen (representing the minimum measurement) was before me, the measurement of the larger one being subsequently interpolated and the contradictory statement inadvertently overlooked.

as the four forms of *Puffinus* involved in these remarks,* may suit the peculiar views of those who would, for some reason best known to themselves, ignore distinctions which Nature has made; but will Dr. Cooper please explain in what matter this method of subversion of facts," or, as he expresses it, "similar combinations of species," would be "advantageous to the study of the water-birds,"—or any other birds, for that matter?—ROBERT RIDGWAY.

Beckham's Birds of Nelson County, Kentucky.—Mr. Beckham's 'List'† "is based almost entirely" upon his former 'List of the Birds of Bardstown, Nelson County, Ky.,' published in July, 1883, and noticed in the 'Bulletin of the Nuttall Ornithological Club' for October, 1883 (Vol. VIII, pp. 227, 228). Four species only are now added, raising the total number to 171. The present list is essentially a reprint of the earlier one, with some revision of the text, and many changes in the nomenclature. It is quite sumptuously printed, and, the introduction states, was prepared "to accompany Mr. Linny's report on the geology of Nelson County." It is without date, and there is no clue given in the 'separates' to its exact place of publication.—J. A. A.

Beckham on the plumage of Regulus calendula.‡—Respecting the presence or absence of the brightly colored crown-patch in different individuals of this species, Mr. Beckham, after an examination of much material, reaches the following conclusions: "(1) that the female does not have this brightly-colored crown, and (2) that some young autumnal males (very likely a large majority of them) do possess this ornament."—J. A. A.

Lawrence on New Species of Birds from Yucatan.—Mr. Gaumer's explorations in Yucatan continue to supply Mr. Lawrence with ornithological material still yielding novelties. In the first§ of the two papers now noticed a new Pigeon is described (*Engyptila vinaceifulva*) from Temax, Yucatan. It is very unlike any other species of the genus, and its light tints give at first sight a suggestion of partial albinism. There are also in this paper further notes on *Engyptila fulviventris* (originally described as *Leptoptila fulviventris*), and on *Chætura gaumeri*.

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* The only one in the least doubtful being *P. stricklandi*, which by good authority is considered to be the same species as *P. griseus*—a view of its relationships which, it may perhaps be needless to say, I have reasons for not accepting.

† List of the Birds of Nelson County. By Charles Wickliffe Beckham. 4to., pp. 58. Kentucky Geological Survey. No date. [Sept. 1885.]

‡ Remarks on the Plumage of Regulus calendula. By Charles Wickliffe Beckham, Proc. U. S. Nat. Mus., Vol. VIII, No. 40, pp. 625-628, Dec. 7, 1885.

§ Description of a New Species of Bird of the Genus Engyptila, with Notes on two Yucatan Birds. By George N. Lawrence. Ann. N. Y. Acad. Sci., Vol. IV, No. 8, 271-273.

The second paper* contains descriptions of a new Gnatcatcher (*Polioptila albiventris*) and a new Swift (*Chætura peregrinator*). The former finds its nearest ally in *P. nigriceps*, and the latter in *C. gaumeri*.—J. A. A.

Lawrence on Birds new to the Fauna of Gaudeloupe, West Indies.†—Ten species are added to those previously recorded from the Island of Guadeloupe, from specimens transmitted by Dr. St. F. Colardeau, with notes respecting their occurrence. Five of them are North American species of Mniotiltidæ; two others are also North American, the other three being West Indian. The large Kingfisher from this island, previously referred to *Ceryle torquata*, is separated specifically as *C. stictipennis*. It differs from *C. torquata* slightly in various points of coloration, to which, however, it is closely allied.—J. A. A.

Stejneger on preoccupied Generic Names of North American Birds.‡—Dr. Stejneger finds that the generic names hitherto applied to the Golden-eye Ducks are all preoccupied, and he therefore proposes for the group the new generic name *Glaucionetta*, with the following species: *Glaucionetta clangula*, *G. clangula americana*, and *G. islandica*.

The generic name *Canace*, applied to the Spruce Partridge, also proves to have previously used for a genus of insects. Elliot's name *Dendragopus* given to the Dusky Grouse, becomes tenable for the Spruce Partridge, if we consider the two species congeneric; and for the subgeneric name *Canace* Dr. Stejneger proposes the new name *Canachites*.—J. A. A.

Ridgway on the Birds of Cozumel Island, Yucatan.§—In Mr. Ridgway's description of 'Some new Species of Birds from Cozumel Island, Yucatan,' published February 26, 1885 (see Auk, II, p. 294), he promised later a full report upon the collection, and this report forms the paper now under notice. After some preliminary remarks upon the collection, numbering 429 specimens, and upon previous papers relating to the birds of this island, he proceeds to give an annotated list of the species, which number 57. Those previously briefly described as new are here redescribed at length, and a new subspecies (*Centurus rubriventris pygmæus*) is added. Seven species, not represented in the collection, are given on the authority of Mr. Salvin, thus raising the total number of species enumerated to 64. The

* Characters of two New Species of Birds from Yucatan. Am. N. Y. Acad. Sci., Vol. IV, No. 8, pp. 273, 274.

† List of a few species of Birds new to the Fauna of Gaudeloupe, West Indies, with a Description of a New Species of Ceryle. By George N. Lawrence. Proc. U. S. Nat. Mus., Vol. VIII, No. 39, pp. 621-625, Nov. 3, 1885.

‡ Notes on some apparently preoccupied Ornithological Generic Names. By Leonhard Stejneger. Proc. U. S. Nat. Mus. Vol. VIII, No. 26, pp. 409, 410. Sept. 14, 1885.

§ Catalogue of a collection of Birds made on the Island of Cozumel, Yucatan, by the Naturalists of the U. S. Fish Commission Steamer Albatross, Capt. Z. L. Tanner, Commander. By Robert Ridgway. Proc. U. S. Nat. Mus. Vol. VIII, Nos. 35-37, pp. 560-583, Sept. 30-Oct. 19, 1885.

distribution of the species is given in tabular form at the end of the paper, from which it appears that 19 are peculiar to Cozumel, while 24 are North American, and the remaining 21 tropical American.

As already noticed (Auk, Vol. II, p. 294), a paper on the birds of this island was published by Mr. Salvin in 'The Ibis' for April, 1885, in which several of the species previously given as new by Mr. Ridgway were renamed by Mr. Salvin. The method of Mr. Ridgway's publication of his preliminary paper (in pamphlet form, in advance of the 'Proceedings' of which it formed a part) having been criticised by Mr. Salvin, Mr. Ridgway takes occasion to defend the system of an advance distribution of authors' editions, so often, and, as we believe, properly, resorted to, particularly, but not exclusively, in this country, in cases where otherwise a considerable interval would elapse between the printing and the distribution, or 'publication,' of the papers in the regular issuing of the publications of which they form a part.—J. A. A.

Minor Ornithological Publications.—'Random Notes on Natural History,' a very excellent and well edited monthly journal of natural history, published by Southwick and Jencks of Providence, R. I., contains (Vols. I-II, 1884-85), besides valuable articles on the Mammals, Reptiles, and Plants of Rhode Island, the following original notes and papers on ornithology (Nos. 1003-1036). The unsigned articles are, we are informed, mainly from the pen of Mr. F. T. Jencks, and are so entered in the following index to the ornithological papers.

1003. *Color of Birds' Eyes.* [F. T. Jencks.] *Random Notes on Natural History*, I, No. 1, Jan. 1884, p. 1, No. 2, p. 1.* No. 4, p. 6, No. 6, p. 3, Vol. II, No. 7, p. 56, No. 8, p. 64, No. 10, p. 75.—Under this head is given the color of the iris of various species of birds, as noted from freshly killed specimens. The notes relate to a large number of species of Birds of Prey, Ducks, Gulls, Herons, Woodpeckers, etc., and in many cases include juvenile stages as well as the adult.

1004. *A Very Rare Bird in Rhode Island.* [By F. T. Jencks.] *Ibid.*, p. 6.—"A Young Gyrfalcon, *Hierofalco Gyrfalco*, var. *sacer*" was killed at Point Judith, Oct. 11, 1883, by E. S. Hopkins.

1005. *Brunnich's Guillemot in Rhode Island.* [By F. T. Jencks.] *Ibid.*, p. 6.—One was shot "between Warwick Neck Light and Patience Island, Dec. 26, 1883. The first specimens we have ever known taken in Narragansett Bay." Ten others are reported as taken later. (*Ibid.*, No. 2, p. 8).

1006. *Short-Eared Owl's Nest.* [By F. T. Jencks.] *Ibid.*, p. 8.

1007. *Among the Buff-breasted Sandpipers.* [By F. T. Jencks.] *Ibid.*, No. 2, p. 4.—The record of a day's collecting at Vermilion, Dak.

1008. [*Bird Notes.* By F. T. Jencks.] *Ibid.*, p. 9.—An adult male King Eider (*Somateria spectabilis*) shot at Nayatt Point, Bristol Co., R. I., about Jan. 1, 1884. Purple Finches reported wintering in abundance near Rangeley Lakes in Maine.

* Each number of Volume I is separately paged.

1009. *The Roseate Spoonbill in Florida Rookeries.* [By F. T. Jencks.] *Ibid.*, No. 3, p. 4, No. 5, pp. 4, 5, No. 6, p. 4.—A detailed account of a collector's experience with the Spoonbills in Brevard County, Florida, near Indian River Inlet, in 1874. Describes the nest, eggs, and habits of the bird, with notes incidentally on various other species.

1010. *A New Bird for Rhode Island and the Second for New England.* [By F. T. Jencks.] *Ibid.*, No. 5, p. 8. and No. 6, p. 3.—A male Prothonotary Warbler, killed in South Kingstown, R. I., April 21, 1884, by R. G. Hazard, 2d.

1011. *A Nonpareil Passerina ciris in Rhode Island.* [By F. T. Jencks.] *Ibid.*, No. 5, p. 8.—Shot in Scituate, R. I., "during the summer of 1882," by Daniel Seamans, who also shot, at the same place, a Richardson's Owl, "during the following winter."

1012. *An English Corn Crake in Rhode Island.* [By F. T. Jencks.] *Ibid.*, No 6, p. 3.—Taken at Cranston, R. I., about 1857. Recorded on the authority of Mr. Newton Dexter, who obtained the bird while still in the flesh.

1013. *Great Gray Owl. Spectral Owl. Strix cinera* (sic). [By F. T. Jencks.] *Ibid.*, No. 7, p. 3.—Record of a specimen killed "late in the winter of 1882 and '83," on Fox Island, near Wickford, R. I. Reference is made to another specimen in the collection at Brown University, "said to have been taken in Seekonk, Mass., some twenty years ago," but apparently not previously recorded.

1014. [*Nest of the Marsh Hawk.*] By G. S. A. *Ibid.*, p. 7.—Reference to the character of five nests found in the season of 1884.

1015. *Valuable Notes from Vermont.* [By F. T. Jencks.] *Ibid.*, No. 8, p. 3.—Gives some notes contributed by Mr. C. W. Graham, which include a record of the capture of a Scissor-tailed Flycatcher (*Milvulus forficatus*) at St. Johnsburg, Vt., some time previously. The specimen "now reposes in Dartmouth College." Also refers to the recent capture near the same place of the Kittiwake Gull and the Stilt.

1016. [*Great Horned Owl appropriating the Nests of the Bald Eagle.*] By Frank H. Allen. *Ibid.*, p. 4.

1017. *Feathered Engineers.* What a Couple of Baltimore Orioles did by Setting Their Wits to Work. *Ibid.*, No. 9, p. 4. (From the 'New York Sun.')

1018. [*A Black Vulture in Vermont.*] By [C. W.] Graham. *Ibid.*, p. 4.—Record of a specimen shot at Woodbury, Vt., about July 10, 1884.

1019. [*A Prolific Pair of Song Sparrows.*] By J. N. Clark. *Ibid.*, No. 10, p. 3.

1020. *Remarks on the Migration of Birds in North America.* By C. Hart Merriam, M. D. *Ibid.*, No. 12, pp. 3-5.—Brief report of the work of the A. O. U. Committee on Bird Migration for the year 1884, giving dates respecting the spring migration of five species.

1021. [*Notes on the Sharp-shinned Hawk.*] By J. N. Clark. *Ibid.*, p. 10.

1022. *A New Wrinkle in Taxidermy.* By William Brewster. *Ibid.*, Vol. II, No 1, p 1.—How to easily turn a mounted bird into a skin.

1023. *The Night Heron.* By S. T. Denton. *Ibid.*, No. 2, pp. 9, 10. —Account of one kept in confinement.

1024. *Winter Notes.* [By F. T. Jencks.] *Ibid.*, No. 2, p. 15.—Records a Great Blue Heron taken in Milton, Vt., Dec. 22, 1884, and the capture of two Great Gray Owls at the same place the previous winter. Also a Prairie Warbler killed in Rhode Island, Dec. 4, 1884.

1025. *The Ipswich Sparrow in Rhode Island.* [By F. T. Jencks.] *Ibid.*, No. 3, pp. 17, 18.—Numbers taken on the sandy beach, near Point Judith, Nov. 27, 1884.

1026. *Bird Migration.* By Montague Chamberlain. *Ibid.*, No. 3, p. 18.—On the arrival of the Night Hawk at Prince Edward Island, based on notes of Francis Bain.

1027. *The Color of Birds' Eyes.* By E. J. Smith. *Ibid.*, No. 3, p. 23.—Notes on various species.

1028. [*Winter Notes.* By F. T. Jencks.] *Ibid.*, No. 3, p. 23.—A Snowy Owl taken at Newport, R. I., and Hawk Owls reported taken in Maine, New Hampshire, Vermont, and New Brunswick. (See also p. 34.)

1029. *A Collecting Trip to Cape Cod.* [By F. T. Jencks.] *Ibid.*, No. 4, pp. 25, 26, No. 5, pp. 33, 34.—Interesting notes on various Shore Birds, Gulls, and Terns, as observed at Chatham, Mass., in May, 1883.

1030. *Notes on the White-breasted Nuthatch.* (*Sitta carolinensis.*) By John H. Steele. *Ibid.*, No 4, p. 26.

1030. *Common Cormorants in Rhode Island.* [By F. T. Jencks.] *Ibid.*, No. 5, p. 34.—A specimen taken at Newport, March 27, 1885, and another at Nayatt Point, April 10.

1031. *A Seasonable Diet.* By Thos. W. Fraine. *Ibid.*, No. 5, p. 35. —The Goosander as a fish murderer.

1032. [*The White-cheeked Warbler, Helminthophila leucobronchialis.*] By J. N. Clark. *Ibid.*, No. 6, p. 43.—Record of a specimen seen (but not taken) at Saybrook, Conn, "in the spring of 1880."

1033. *Wingless Birds.* By J. W. Wonfor. *Ibid.*, No. 6, pp. 49-51.—A brief account of Ostriches, Emus, Cassowaries, and Penguins.

1034. *Breeding-Places of Millions of Sea Fowl. Ibid.*, No. 7, pp. 53, 54.—At Bird Rock, Gulf of St. Lawrence. (From the Providence 'Sunday Telegram.')

1035. *Notes on Food of Raptorial Birds.* By Charles Dury. *Ibid.*, No. 8, pp. 57, 58.—Notes on the contents of stomachs of various species of Hawks and Owls. (From Journ. Cincinnati Soc. Nat. Hist. April, 1885.)

1036. *Successful Rearing of some Young Dusky Ducks.* By J. N. Clark. *Ibid.*, No. 12, p. 93.—J. A. A.

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Blasius, W. (1) Die Raubvögel von Cochabamba. (Mitth. des Orn. Ver. Wien, 1884.) (2) Osteologische Studien (Messungs-Methoden an Vögel-Skeletten). (Journ. für Orn. Oct. 1885.) (3) Ueber einige Vögel von

Cochabamba in Bolivia. (Journ. für Orn. Oct. 1885.) (4) Vögel von Celebes. (Braunschweigische Anzeiger, No. 52, 3 März, 1886.)

Boeck, Eugene von, and W. Blasius. Ornis des Thales von Cochabomba in Bolivia und der nächsten Umgebung. (Mitth. des Orn. Ver. Wien, 1884.)

Finsch, Otto. (1) On a new Reed Warbler from the Island of Narvodo, or Pleasant Island, in the Western Pacific. (Ibis, April, 1883.) (2) On two new Species of Birds from New Ireland. (Ibis, Jan. 1886.)

Finsch Otto, and A. B. Meyer. Vögel von Neu Guinea, zumeist aus der Alpenregion am Südostabhange des Owen Stanley-Gebirges. I, Paradiseidae. (Zeits. für die gesammte Orn. 1885, pp. 271-391, pl. xv-xxii.)

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Zoölogist, XI, Nos. 109-111, Jan.-Mch. 1886.

GENERAL NOTES.

Discovery of the Nest of Larus rossii in Greenland.—Mr. Paul Müller, son of Herr Sysselmand Müller, the Faröe ornithologist and assistant at the Danish Government establishment of Christianshaab, Greenland, has been fortunate enough to discover a nest of the above rare species. It

was found on June 15 last at Ekomiut, in the district of Christianshaab, and was situated in the midst of the nests of a colony of *Sterna macroura*. The female bird was shot off the nest, which, when found, contained two eggs. Of these one was unfortunately broken, and the other, which was also damaged, is now in the possession of Herr Weller of Copenhagen. It is in color and appearance very similar to the egg of *Larus minutus*, is of a pyriform shape, and measures 44 mm. × 33 mm. This discovery is of some interest, the species, as is well known, having been hitherto of rare occurrence and the breeding habitat unknown.—John J. Dalgleish, *8 Athole Crescent, Edinburgh.*

A Flock of Chen rossii East of the Rocky Mts.—On the 17th of April, 1885, after several days of stormy weather, with wind from the northwest, accompanied at times by heavy fog and rain, there appeared on a bar in the Missouri River at this place, a large flock of Ross's Snow Geese. In the afternoon of the same day, procuring a boat, we rowed toward the flock, which presented a rather remarkable sight, consisting, as it did, of several thousand individuals squatting closely together along the edge of the bar. Here and there birds were constantly standing up and flapping their wings, then settling down again, all the while a confused gabble, half goose-like, half duck-like, arising from the whole flock. We approached to within a hundred yards or so, when the Geese lightly arose to a considerable height and flew off over the prairie, where they soon alighted and began to feed on the short green grass. While flying, often two or three birds would dart off from the main flock, and, one behind the other, swing around in great curves, quite after the manner of the little Chimney Swift in the East. Apparently these same birds remained about till the 26th of April, long after the storm was over, but they became broken up into several smaller flocks some time before leaving. Some five or six specimens were shot during their stay.—Robert S. Williams, *Great Falls, Montana.*

Capture of a Pair of Wild Hybrid Ducks (Mallard + Muscovy) on Long Island.—Mr. G. C. Morris, of Sag Harbor, New York, had at the annual exhibition of the New York Fanciers' Club, held in New York City, February 3 to 10, 1886, a pair of 'strange Ducks' which no one had been able to name. My attention was directed to them by Mr. Morris, who called upon me at the American Museum of Natural History in relation to them. From the clear account of them he was able to give me, I had no difficulty in deciding as to their character, and an examination of the birds themselves the following day confirmed my identification of them. Unlike most previous examples that have been reported of this interesting cross, they showed no tendency to albinism, there being no abnormal white markings, but presented just the combination of features one would look for in a cross between a wild Mallard and a Muscovy unchanged by domestication. The birds, both male and female, were in perfect plumage, exceedingly beautiful and presented in nearly equal degree the characteristics of the two species.

I learn from Mr. Morris that the drake was first seen about September 1, 1884, in Poxibogue Pond, in the village of Bridge Hampton, on Long Island, in company with some domestic ducks owned by a Mr. Topping. This gentleman at first tried to shoot him, but he proved to be very wary, and when approached would fly away toward the ocean, about two miles distant. Several other persons saw him and tried unsuccessfully to capture him. He showed a liking for the pond, and finally came regularly every morning to feed with the tame ducks, returning to the ocean at night. One day during a severe thunder squall the tame ducks left the pond and ran into their pen for shelter, the wild bird accompanying them. The owner closed the door and thus captured him. He simply clipped his wing-feathers and let him run with his flock.

The duck, or female hybrid, alighted in Otter Pond, near the upper part of Main Street in the village of Sag Harbor, early one morning in October, 1884. She accompanied some tame ducks on shore, and several men attempted to drive her with the others into a duck pen, but she took wing, struck against a fence, fell back, and was captured before she could recover herself. Her wing was also clipped and she remained a captive.

Several persons who saw the strange birds thought they were of the same species; so the two were brought together. They mated, and the female laid two clutches of eggs and sat upon them, but they proved infertile. They were allowed their liberty, kept together, and associated with a flock of tame ducks. They are now owned, Mr. Morris informs me, by Mr. A. L. Thorne, of Whitestone, Long Island.—J. A. Allen, *Am. Mus. Nat. Hist., New York City.*

Tringa damacensis (Horsf.) in Alaska; a Sandpiper new to the North American Fauna.—Among the birds collected by Mr. Chas. H. Townsend, during his trip on the U. S. Revenue Cutter 'Corwin,' is an example of this species, obtained on Otter Island, Bering's Sea, June 8, 1885. The specimen is an adult female, in breeding plumage. An account of this species, embracing full synonymy, a comparison with allied species, critical remarks, and observations on habits, may be found in Dr. Stejneger's 'Ornithological Explorations in Kamtschatka' (Bulletin No. 29, U. S. National Museum), pp. 116-118.—Robert Ridgway, *Washington, D. C.*

The Masked Bob-white (*Colinus ridgwayi*) in Arizona.—In 'The Auk' for April, 1885 (Vol. II, p. 199), Mr. William Brewster described a new species of Bob-white, under the name *Colinus ridgwayi*, based on a male specimen taken by Mr. F. Stephens in Sonora, Mexico, a few miles south of the Arizona line. Mr. Stephens, according to Mr. Brewster, had "recently examined two specimens which were actually taken in Arizona, thus adding the species to our fauna." Through the kindness of Mr. Herbert Brown, of Tucson, Arizona, I have recently had the opportunity of examining thirteen specimens of this interesting species, all taken within the last few months in the Barboquivari Mountains, Arizona, about

ten miles north of the Mexican boundary. These specimens consist of males and females in nearly equal number, and furnish material for a very satisfactory account of the species, which will form the subject of a special paper soon to appear in the 'Bulletin' of the American Museum of Natural History. The paper will be illustrated with a colored plate, giving figures of both sexes. In this connection I will therefore merely state that the original specimen on which the species was based proves to be rather exceptional in certain features, most of the specimens before me showing a more or less well-marked white superciliary line, which is quite absent in the type. The female proves, rather curiously, to be scarcely distinguishable from the female of *Colinus virginianus texanus*, differing less from this than the latter does from the female of *C. virginianus verus*.

Great credit is due Mr. Brown for his efforts, in securing these specimens he having sent out collectors on several different occasions especially in quest of the species.—J. A. Allen, *Am. Mus. Nat. Hist., New York City.*

Discovery of the Breeding Place of McKay's Snowflake (*Plectrophenax hyperboreus*).—In the January 'Auk' (p. 135), I mentioned the fact that the breeding range of this species was "not polar," but on the other hand "considerably south of the Arctic Ocean," at the same time intimating that I was not at liberty to explain the nature of the evidence upon which the statement was based. Since his return from an extended cruise on the U. S. Revenue Cutter 'Corwin,' Mr. Chas. H. Townsend has given me permission to publish the facts bearing on the case. On the 8th of September, 1885, Mr. Townsend, with others of the 'Corwin's' party, landed on Hall Island, in Bering's Sea (lat. about 60° 30′ N., long. 173° W.), a small island lying just north of St. Matthew's Island. Although the greater portion of the day was consumed in the hunting of polar bears, a 1600 lb. specimen of which was shot and skinned, Mr. Townsend had time to get a small number of birds, two of which were *Plectrophenax hyperboreus*, one of them a young bird in first plumage, though full-grown, the other, an adult just moulted into the fall plumage, the moult in fact not quite complete. These specimens will be described in the current volume (Volume IX), of the 'Proceedings' of the U. S. National Museum. These birds were fairly abundant on the island, but much scattered, not having yet collected into flocks. Mr. Townsend regards it as very probable that on St. Matthew's Island, less than five miles to the southward, and many times larger than Hall Island (being, in fact, about thirty miles long, and mountainous), the species may have its centre of abundance. The occurrence of *P. hyperboreus* in winter at St. Michaels and at Nushagak, points on the Alaskan coast to the northeast and southeast, respectively, from St. Matthew's and Hall's Islands, and not at Point Barrow or other portions of northern Alaska, is thus accounted for. It is a very singular circumstance, however, that the Snowflakes breeding on the Prybilov Islands, only two hundred miles to the southward, are *P. nivalis*, as is attested by numerous specimens brought from St. Paul's and St. George's by Mr. Henry W. Elliott, and from Otter Island by Mr. Townsend. It would be

interesting to ascertain which species breeds on the very large island of St. Lawrence, about one hundred and sixty miles north from Hall's Island, although the proximity of the Siberian mainland, which is less than fifty miles distant, may determine the species as *P. nivalis*.—Robert Ridgway, *Washington, D. C.*

Immature Dress of Melospiza palustris.—A young female of this species, taken at Canton, O., October 16, 1885, differs so much from the published descriptions of the species that it was referred to the father of young ornithologists, Dr. Coues. At his suggestion that the peculiarities of the *young* bird, though known to him, would be of interest, I make the following notes of its points of difference from the adult.

Superciliary line pale but distinct lemon yellow; crown dark chestnut brown, only slightly darker on the forehead, where the black streaks become more numerous, without any of the bright chestnut of the adult; median line ashy, faintly tinged with yellowish; sides of the head and lower throat faintly tinged with yellowish brown, which color extends along the front half of the cervical collar; the black streaks on the back and the bay on the wings less prominent; inner tertiaries edged and tipped with bay; no whitish.

Having only two specimens from which to draw comparisons, these points are noted with diffidence. The yellow superciliary line, however, being so distinct, and contrary to the usual description of the genus, seems to be worthy of the attention of ornithologists.—R. H. Bulley, *Canton, O.*

[This is another case of '*Passerculus caboti*'; see Bull. Nutt. Orn. Club, Vol. VIII, 1883, p. 58.—E. C.]

Wintering of the White-throated and Ipswich Sparrows in Maine.—On January 20, 1886, I shot a White-throated Sparrow at Saco, Maine. It seemed to be comfortably settled for the winter in a swampy piece of woods, consisting chiefly of birches, with a scattering of young spruces. It was in dull autumnal plumage, and proved on dissection to be a male.

On January 23, I found two Ipswich Sparrows in the beach grass about half-way between Pine Point and Old Orchard. I managed to secure them both, though not without some difficulty, as they were exceedingly shy.

Taking the lateness of the date and the severe weather which prevailed for two weeks previous into consideration, I believe that both species were undoubtedly wintering. They certainly had not suffered for food, as all three were well feathered and plump, the Whitethroat in particular being quite fat.—Joseph L. Goodale, *Cambridge, Mass.*

Junco hyemalis Nesting in a Bush.—Apropos of my description of the nesting of *Junco carolinensis*,* Mr. S. N. Rhoads, of Haddonsfield,

* Auk, Vol. III, No. 1, Jan. 1886, p. 109.

New Jersey, writes me: "About the year 1874, when traveling through the White Mountains of New Hampshire, I found the nest of *Junco hyemalis* in a green bush (juniper?) about four feet high, on the summit of Mt. Willard. The nest, which was placed about two feet from the ground, contained a set of four eggs, for the safety of which the birds were very solicitous, thus giving me an ample opportunity to identify them."

This is the first authentic instance of bush-nesting on the part of *J. hyemalis* which has come to my knowledge.—WILLIAM BREWSTER, *Cambridge, Mass.*

Peculiar Nest of Chelidon erythrogaster.—A nest of the Barn Swallow having no mud or dirt in its composition may be something of a curiosity. Such a nest was found by me on Cobb's Island, Virginia, July 7, 1884, under the eaves of the porch of the main house in the settlement. It was rather compactly made up of rootlets and grass, and was thickly lined with downy chicken feathers. It was four and a half inches in diameter and one inch in depth. In it were four newly laid eggs. The writer is wholly at a loss to account for this departure from the usual style of architecture adopted by the Barn Swallow; there was certainly no dearth of mud out of which to construct a nest of the more approved type.—HUGH M. SMITH, *National Museum, Washington, D. C.*

The Orange-crowned Warbler in Eastern Massachusetts.—During a visit to Cambridge last autumn, Mr. H. W. Henshaw spent a day with me in rambling through certain fields and woods which we used to ransack together years ago. We had not expected to do much more than enjoy the brilliant autumn coloring and revive old-time associations; but late in the afternoon, as we were passing through a lane in Belmont, Mr. Henshaw had the good fortune to discover and shoot an Orange-crowned Warbler (*Helminthophila celata*) which was feeding in a low birch in company with several Yellow-rumps (*Dendroica coronata*). This specimen, an adult male in unusually fine plumage, is only the second for Middlesex County, and, I believe, the fifth for the State. Through my friend's generosity it has found a final resting place in my collection by the side of the female which I shot at Concord in 1876.* The date of this last capture was September 30, 1885.—WILLIAM BREWSTER, *Cambridge, Mass.*

Seiurus ludovicianus in Maine—A Correction.—The recent death of Prof. C. E. Hamlin makes it necessary to correct an error, which, if he had lived, he intended to have corrected himself.

In his Catalogue of the Birds of Waterville, Maine,† the Large-billed Water-Thrush was included on the evidence of a single specimen (No. 2392, Cambridge Museum Comp. Zoöl.). Professor Hamlin and I re-

* See Bull. N. O. C., Vol. I, Nov., 1886, pp. 94, 95.

† Tenth Annual Report of the Maine Board of Agriculture for 1865, pp. 168–173.

cently examined this bird and found it to be the common Oven-bird (*S. aurocapillus*).

It is only just to Professor Hamlin to state that he should not be held responsible for the error, as he sent a large number of alcoholic specimens to the Cambridge Museum at that time, and after they had been identified, the list of names (among which was (*Seiurus ludovicianus*) was returned to him and by him incorporated in his paper. Nor was the mistake Mr. Allen's, as he was not connected with the Museum until several years later.

This leaves *Seiurus ludovicianus* with but a single record for the State of Maine.—Arthur P. Chadbourne. *Cambridge, Mass.*

Changes in the Plumage of Geothlypis trichas. — In the interesting review in the October 'Auk' (1885), of the tenth volume of the British Museum Catalogue of Birds, Mr. Allen very appropriately takes occasion to correct the gross error, into which most of the books have fallen, in regard to the winter plumage of the males of so common and extensively distributed a species as *Geothlypis trichas*. The error in question is a statement to the effect that in winter the adult male loses the conspicuous black and ashy markings about the head, and takes on the uniform olivaceous and brownish colors of the upper parts of the female. In making this correction, however, Mr. Allen, I believe, does not go far enough, for according to my observations the males not only never assume the plumage of the female after having once attained the masculine livery, but young birds moult directly into a plumage approaching that of the adult male (which will be indicated in detail farther on), when they begin in August to shed the well-known fluffy 'first plumage,' with its greenish and ochreish tints, brownish wing-coverts, etc.

There are, Mr. Allen states, instances in which the young male has been taken in winter in the female plumage, but these, I think, should be regarded as exceptional. I have examined very carefully the two large series of this bird (including Mr. Brewster's *occidentalis*, which, for the purpose we have in hand, may be 'lumped' with *trichas*) contained in the collection of the National Museum, and in that of Mr. Henshaw, besides ten or a dozen other specimens, amounting altogether to 144 individuals, and have failed to find a single winter male without the adult black and ashy markings. But I did find three spring males with these characters so imperfectly developed as to indicate, probably, that the birds had passed the preceding winter in the plumage of the female.

The changes in plumage when the young male begins his first moult, which occurs in August, in the latitude of Washington, may be briefly summarized as follows:—The feathers of the head and middle of the throat appear to be the first that are lost. The latter are replaced by yellow ones (not so bright, however, as in the adult), which at first are to be seen in linear blotches. Those of the head give place to a new set, of a fine chocolate brown color, shading off into olivaceous towards the nape in most birds, in some, however, extending over almost the whole of the

upper parts. Before these two changes are completed, the first black feathers begin to show themselves in the maxillary region, and they gradually spread into an irregularly shaped patch on the sides of the head and neck. Nearly all of these black feathers are tipped with ash, the amount of which appears to vary with the individual. At this stage the black is quite similar to that which adorns the breast of *G. philadelphia;* and in this plumage the bird is the one described by Audubon (Orn. Biog., I, 1832, 124, pl. 24) as *Sylvia roscoe*, and is very common during the latter part of August and in September. The next step in this somewhat protracted change begins in September, when the black feathers make their appearance on the forehead at the base of the upper mandible, whence they continue to extend until the area usually covered with black is attained: and the border of hoary ash now appears sharply defined against the black mask and the greenish olive and brown of the rest of the upper parts. The ashy tips to the black feathers have now entirely disappeared. A New Orleans specimen (No. 90.665) taken November 22, undoubtedly a young bird of the year, illustrates this phase very perfectly. No. 2782, (Coll. H. W. H.), collected November 1, shows a stage preceding the last; the soft chocolate brown covers the whole back of the head, and the ashy band, which seems to be a very variable character, is very much restricted.

It may be well to state that of the 144 specimens examined of *trichas* and *occidentalis*, 24 of them were young August and autumnal males in various transitional stages of plumage, and there are none of them taken later than August 20 which do not show some traces of the changes above indicated. There is another peculiarity of young fall birds, female as well as male, which seems to be very constant, first pointed out, I believe, by Professor Baird (Rev. Am. Bds. 1864, 221), namely, the much lighter color of the bill as compared with spring birds.

During the past summer and autumn, the writer enjoyed excellent facilities for observing the Yellow-throat in his native haunts. A favorite collecting ground was an old forest-surrounded field, near Ellicott City, Md., through the centre of which ran a brook of considerable size, whose banks were fringed with such a dense and luxuriant growth of bushes and tangled vines as to meet over the middle of the stream, forming, as any 'bird-man' knows, a paradise for Yellow-throats, Chats, and other thicket-loving species. On three or four different occasions during the latter part of August I penetrated this tunnel of verdure, and by employing the well-known 'screeping' device—making a noise-machine out of the back of the hand and the lips—attracted the usual mob of curious, scolding, and anxious little birds. The young Yellow-throats were particularly numerous in these excited assemblages, and once I counted seven young males with the incipient black masks, and two young females in sight at the same time, the most distant of them not twenty feet from the spot where I was sitting. During the following month (September), I found the young males in the transitional plumage quite common in Kentucky, where I collected a good deal.

There is one specimen in the National Museum collection that doubtless deserves special mention in this connection. The label thereof reads as follows:

"66,643. Geothlypis trichas ♂ ad. No. 104. Cleveland, Ohio, May 11, 1874. J. S. Newberry, M. D. Large testicles stated to have been found. Given to Smithsonian Institution by E. Coues."

Taken by itself the label presents nothing remarkable, but tied to the leg of this particular bird it affords us one of those by no means uncommon ornithological puzzles, which, in the language of Dundreary, "no fellow can find out." The bird is in the full spring plumage of the *female*, without a single trace of black or ash about the head.—Charles Wickliffe Beckham, *Washington, D. C.*

Unseasonable Birds on Long Island.—1. **Galeoscoptes carolinensis.**—On December 30, 1882, while passing along one of the streets of our village — Fort Hamilton — my attention was arrested by a bird note, familiar yet strangely out of place at that season — none other than the characteristic cry of the Catbird. I caught sight of the bird a moment later, hopping about in the branches of a lilac bush in a private yard, not a dozen feet from me, so that there was no error in the identification.

2. **Oidema perspicillata.**—During a week's stay at Montauk Point, from July 15 to July 21, 1883, I saw on several occasions a flock of 'Sea Coots' floating on the ocean about 250 or 300 yards from shore. To which of the three species they belonged I could not tell. On June 12, 1884, I saw a flock of at least fifty 'Sea Coots' in the Lower New York Bay, off Coney Island, but the distance was too great to determine the species; but on the 20th of the same month, while sailing in Gravesend Bay, about two miles below Fort Hamilton, we came upon three individuals of *O. perspicillata*. We ran down to within 20 yards of them before they took wing, but as the gun had been left at home, in deference to the ladies, I was unable to secure them.

3. **Harelda glacialis.**—While yatching in North Oyster Bay, Long Island Sound, on July 12, 1884, I shot a fine male 'Old Wife.' The bird was apparently well and uninjured, and was swimming about in a lively manner as we approached. My first shot either missed or only wounded it slightly, for it instantly rose and was flying off rapidly when I killed it with my second barrel. I skinned it, and could not find any marks of old wounds or other injuries. It was in full plumage and differed from the adults usually taken in this latitude by the greater amount of orange brown on the back and scapulars. The dark zone on the breast was also of a lighter shade than usual.—De L. Berier, *52 Broadway, New York City.*

Two Additions to the Texas Avi-fauna.—I have taken in Cook County, Texas, the following: *Syrnium nebulosum alleni*, *Turdus fuscescens salicicola*.—G. S. Ragsdale, *Gainsville, Texas.*

A Partial Albino Hermit Thrush (*Turdus aonalaschkæ pallasii*).—I have a male of this species taken in this vicinity October 27, 1885, which has the top of the head and the back light gray. Below white, the spots on the breast being fairly distinct. Tail and the primaries and secondaries fawn color.—Jno. H. Sage, *Portland, Conn.*

On two Abnormally Colored Specimens of the Bluebird (*Sialia sialis*).—The United States National Museum has, through the generosity of their respective collectors, come into possession of two adult males of the common Bluebird which differ so much from the normal plumage of that species as to be worthy of special description.

No. 91,303, ♂ ad., collected at Escanaba, Mich., June 6, 1883, by Mr. Wm. Palmer, Washington, D. C., has the color of the upper parts agreeing exactly with that of more richly colored examples in the normal plumage (precisely as in No. 63,366, from Massachusetts, for example*), the tint approaching very nearly to a pure ultramarine. The coloration of the anterior underparts, however, is quite abnormal, all of the cinnamon-colored feathers of the breast, etc., being blue beneath the surface, the feathers of the sides of the breast being chiefly or entirely blue, the latter color largely prevailing, the uniform cinnamon being confined to the middle of the breast and lower central portion of the throat. The posterior lower parts are white, however, as in true *sialis*, and not bluish, as in *mexicana*, and the bill is stout as in *sialis*, the measurements being quite normal.†

No. 107,218, collected in Baltimore Co., Maryland, March 31, 1885, by Mr. A. H. Jennings, of Baltimore, is abnormal only in the color of the upper parts, which are of a very rich uniform azure blue, almost precisely the same shade as in *S. arctica*, but even rather more greenish than in many examples of the latter species. Viewed in a particular light, many of the feathers, especially the rectrices and larger scapulars, show very regular and rather distinct darker bars, or 'water marks.' The shade of blue is quite identical with that of the *S. azurea*, the color being rather richer; but it is a notable fact that the cinnamon-color of the breast, etc., is as intense as in any specimen of normal *S. sialis*, and not of that pale ochrey tint always characteristic of *azurea*. The measurements of this specimen are as follows: Wing, 3.95; tail, 2.70; culmen, .65; tarsus, .80.

In order to show how little variation there is in this species according to locality, I present herewith measurements of several Florida specimens (three of them breeding birds) and examples from extreme northern localities. As to color, it may be remarked that none of the Florida exam-

* Many examples of *S. mexicana* are not appreciably different in shade of blue from the richer colored specimens of *S. sialis*.

† [There is, and has been for many years, a specimen of *Sialia sialis* (No. 9105, ♂, Newtonville, Mass., March 10, 1868,) in the Museum of Comparative Zoölogy at Cambridge, which agrees very closely with the specimen here described by Mr. Ridgway, the whole throat being blue, and all the cinnamon-colored feathers of the breast blue beneath the surface, the blue showing prominently on the slightest disarrangement of the feathers.—J. A. Allen.]

ples in the National Museum collection exceed in richness of coloration the average of more northern specimens, No. 63,366, from Massachusetts, being, in fact, more intense in coloration than any of the Florida series.

FLORIDA SPECIMENS.

Museum Number.	Sex and Age.	Locality.	Date.	Wing.	Tail.	Culmen.	Tarsus.
4920	♂ ad.	Florida (Nassau Co.)	(Summer)	4.10	2.90	.67	.80
58345	♂ "	" (Jacksonville).	Dec. 31.	4.00	2.80	.65	.78
81940	♂ "	" (Milton).	March 22.	3.95	2.70	.65	.75
89854	♂ "	" (Gainesville).	(Summer)	4.00	2.70	.65	.75
1,640, H. W. H.	♂ "	" (Cedar Keys).	Dec. 20.	3.90	2.75	.67	.78
			Average.	3.99	2.77	.66	.77

NORTHERN SPECIMENS.

Museum Number.	Sex and Age.	Locality.	Date.	Wing.	Tail.	Culmen.	Tarsus.
61140	♂ ad.	District Columbia.	March 31.	4.05	2.75	.62	.80
82579	♂ "	" "	" 8.	4.00	2.60	.62	—
82580	♂ "	" "	April 11.	4.15	2.75	.65	.80
63366	♂ "	Massachusetts (Needham).	" 19.	3.90	2.60	.65	.80
77179	♂ "	Illinois (Cook Co.).	March 30.	3.95	2.70	.67	.80
89273	♂ "	Hudson's Bay Terr. (Moose Factory).	(Summer)	3.90	2.60	.67	.75
91303	♂ "	Michigan (Escanaba).	June 6.	3.95	2.80	.65	.75
			Average.	3.99	2.69	.65	.78

ROBERT RIDGWAY, *Washington, D. C.*

Another Black Robin.—While looking at the birds in an aviary in Somerville, Mass., a few days since, I noticed an American Robin as dark as a European Blackbird, for which I took it until the owner informed me that it was our Robin taken from the nest, in this neighborhood, by himself. He told me that Robins thus raised in confinement were often thus colored. Is not the melanism to be connected with the peculiar conditions to which the bird is exposed? The aviary is built like a greenhouse, with one side (glass) sloping to the south. It has no artificial heat therein, yet keeps southern birds (as Cardinal Grosbeaks) in good condition. The Robins get no worms except those they may pick up in the aviary.—WALTER FAXON, *Cambridge, Mass.*

Some Additions to the Avi-fauna of Colorado.—Mr. Frank M. Drew, in his admirable paper 'On the Vertical Range of Birds in Colorado' (Auk, Jan., 1885), makes no mention of the following species, and, so far as I know, they are new to Colorado. The notes were obtained by the joint efforts of Mr. A. W. Anthony and the writer.

Spizella socialis. CHIPPING SPARROW.—On May 14, 1882, I first made the acquaintance of this species. Small numbers were seen for a week or ten days during the migration. I did not see any more until May 19, 1884, when they were abundant on the Platte River and congregated in large flocks.

On the night of April 22, of the past spring (1885), we had the heaviest fall of snow of the season at Denver, and it continued to fall for most of the forenoon of the 23d. All the morning I had noticed a number of small birds flying about and on closer examination they proved to be of this species. A few were seen off and on until May 12.

Scolecophagus carolinus. RUSTY BLACKBIRD.—In the collection of Mr. Anthony is a pair of Rusty Grackles which he shot December 17, 1883. They were in a piece of swampy ground, near Denver, and were the only ones seen.

Colaptus auratus 'hybridus.' 'HYBRID FLICKER.'—Specimens of this bird are not uncommon here. Generally seen during the migrations.

Syrnium occidentalis. SPOTTED OWL.—In the collection of Mr. A. W. Anthony is a specimen of this Owl, which he shot either in January or February, 1882. It was in a wet marshy place grown up to coarse grass. The bird seemed to make its home in this locality for some time, as he says he flushed it from the grass on several different occasions during the winter, before he succeeded in shooting it. On corresponding with Mr. C. E. Aiken, of Colorado Springs, we learn that he has taken several specimens which he refers to this species.

Glaucidium gnoma. CALIFORNIA PIGMY OWL.—The earliest specimen of this species is in the possession of a taxidermist of this city, who informs us that it was found dead and frozen under a bank on Clear Creek, in the vicinity of Denver, February 3, 1881. In July, 1884, the writer was camped on Bear Creek, a brawling mountain stream, which winds its way through the cañon of the same name. On the afternoon of the 21st, I crossed the

creek and commenced climbing the rugged side of the mountain, every now and then stopping to rest and listen for some bird-note to guide me. I had been climbing for perhaps half an hour when, on turning to look back, I saw a small, thick-set bird, having the appearance of an Owl, flying along the side of the mountain some distance below me. As the sun was shining brightly I expected he would alight near by, but this he did not seem at all inclined to do, but kept on until lost to sight around a projecting spur of the mountain. Following in his line of flight, I was soon attracted by the chattering of some Mountain Chickadees, and on approaching nearer I found his Owlship in the top of a small spruce with a number of small birds about him. On shooting it, it proved to be of this species. I was unable to tell the sex from dissection, but owing to its large size and coloration I believe it to be a female. The nearest settlement which can be called by the name of town, was Evergreen, three or four miles distant.

Nycticorax nycticorax nævius. BLACK-CROWNED NIGHT HERON.—In the collection of the Denver High School is a specimen of this Heron which is labelled Fort Collins, Colorado, May, 1882. Sex ♂.

Two more specimens—an adult and young bird—are in the possession of a taxidermist of this city, who informs me that they were shot by a ranchman a few miles from the city. They bear no label, but he believes they were taken either in the year 1882 or 1883.

The fourth specimen was brought to me May 12, 1885, and was a full plumaged male in good condition. It was also shot by a ranchman, about twenty miles from Denver.

Charadrius squatarola. BLACK-BELLIED PLOVER.—In the collection of Mr. Anthony is a specimen of this bird, which he secured in the market October 22, 1885. The game-dealer said it was brought in but a few minutes before he purchased it. It was a young male, very fat, and was shot on a small lake near this city.

Philohela minor. AMERICAN WOODCOCK.—In a gun store in Denver, Mr. Anthony found a mounted specimen of the Woodcock, which he learned was shot on August 12, 1885.

He also learned that a second specimen had been shot in the last week of October of the same year. They were taken almost within the city limits, and our informer stated that many others were seen, but as *Gallinago delicata* is also common in the locality, we prefer to think he confounded the two species.

Phalacrocorax dilophus. DOUBLE-CRESTED CORMORANT. — About the 1st of November, 1885, one of our daily papers mentioned a bird called a 'Surf Coot,' which was on exhibition at a certain restaurant in the city. Mentioning the fact to Mr. Anthony, he started in quest of information, only to learn that the bird had been sold to some unknown person. A few days later, however, he stumbled upon the supposed 'Surf Coot,' in the possession of an amateur collector, and on examination it resolved itself into the Double-crested Cormorant. We understand it was shot about twenty miles from Denver.

Larus argentatus smithsonianus. AMERICAN HERRING GULL. — A

young bird of this species was shot November 17, 1883, and is now in the collection of Mr. Anthony. The person who shot the bird said that many other Gulls were seen, but whether they were of this species is questionable. It was shot on a small lake a few miles from the city.—HORACE G. SMITH, JR., *Denver, Col.*

CORRESPONDENCE.

[*Correspondents are requested to write briefly and to the point. No attention will be paid to anonymous communications.*]

Revival of the Sexual Passion in Birds in Autumn.

TO THE EDITORS OF THE AUK:—

Sirs: In 'The Auk' for January (p. 141), Mr. Bradford Torrey speaks of the revival of the sexual passion of birds in autumn. A similar occurrence has been observed here for two or three years past. The early winter (November and December), this year was exceptionally mild in this locality. During this weather the English Sparrows were seen building their nests and the male birds were seen hopping about the females with lowered wings and acting exactly as they do in spring. The birds were very noisy and a great deal of fighting occurred. As soon as cold weather came on all this stopped and the Sparrows found it necessary to spend all their time in securing food.

Respectfully. CHAS. KEELER.

Milwaukee, Wis., January 29, 1886.

NOTES AND NEWS.

THE Fish Commission Steamer 'Albatross' sailed from the Washington Navyyard February 15, for a cruise among the Bahamas and other islands in the West Indies. Among the islands which will be visited is Cat Island, or San Salvador, the first land discovered by Columbus. The 'Albatross' is well provided with trained naturalists and collectors, of whom Mr. James E. Benedict, Mr. Thomas Lee, Mr. W. Nye, and Mr. Chas. W. Townsend will pay special attention to the birds, of which they are prepared to make a judiciously limited and selected collection, while in no case will they jeopardize the continued existence of any local species,

however rare or limited in its habitat. The almost unparalleled success of the naturalists of the 'Albatross' last year on the island of Cozumel, where they discovered no less than 19 new birds, argues well for the exploration in which they are now engaged.

The Ridgway Ornithological Club of Chicago, held its regular monthly meeting on Thursday evening, March 11. After the reading of the new constitution and by-laws, Mr. G. Frean Morcom exhibited the only known specimen of *Colinus ridgwayi* lately described in 'The Auk.' Mr. H. K. Coale read a paper entitled 'Six Days' Ornithological Research in St. Louis County, Mo., and St. Clair County, Ill.,' illustrated by a series of skins of the birds collected.

The scientists of Indiana organized, on December 29, 1885, 'The Indiana Academy of Science.' D. S. Jordan, M. D., was chosen president, J. M. Coulter, Ph.D., J. P. D. John, Ph.D., and the Rev. D. R. Moore, vice-presidents, Amos W. Butler, secretary, Prof. O. P. Jenkins, treasurer, and Mr. J. N. Hurty, librarian. Curators were appointed in several departments, Mr. A. W. Butler being elected to that of Ornithology. Mr. Butler presented a paper entitled 'The Past and Present of Indiana Ornithology,' giving an account of the present status of ornithological study in that State.

The Nuttall Ornithological Club of Cambridge has decided to issue a quarto series of 'Memoirs,' to be published at irregular intervals. They will consist of papers too long for insertion in 'The Auk,' the size of this journal proving inadequate for the reception of the larger ornithological memoirs offered it. The first Memoir of the series, just issued, is by Mr. William Brewster, and treats of the general subject of the migration of birds, giving also a detailed account of the author's valuable observations made at Point Lepreaux, N. B., during the autumnal migration of 1885.

As we go to press we are just in receipt of the concluding numbers of the volume on birds (Vol. IV) of 'The Standard Natural History,' edited by Dr. J. S. Kingsley, and published by S. E. Cassino and Company of Boston. The volume is an imperial octavo of 558 pages, illustrated with 25 full-page plates, and numerous very fine cuts in the text. The authors are Mr. W. B. Barrows, who has furnished the part treating of the Birds of Prey, Mr. Daniel G. Elliot, who has written the part relating to the Hummingbirds, Dr. J. S. Kingsley, who treats of the Parrots, and Dr. L. Stejneger, who is the author of the remainder and the principal part of the work. The work will be noticed at length in a later number of this journal.

The A. O. U. Committee on Bird Protection continues to show a commendable degree of activity, and already its influence in behalf of the birds is wide-spread and important. It being evident that much of the wholesale slaughter in aid of the milliner's craft is due to thoughtlessness, and the apathy of the public as to the enormous magnitude of this destruction, and the evil consequences that must result from it, the Com-

mittee's first duty seemed to be to diffuse information and awaken public sentiment. Through the kind coöperation of the editor and publisher of 'Science,' and of Mr. G. E. Gordon, President of the American Humane Association, they have been able most effectively to reach the public. A supplement of sixteen pages, devoted exclusively to the subject, was published with No. 160 of 'Science' (February 26, 1886), and is to be republished as a 'separate,' under the title of 'Bulletin No. 1' of the A. O. U. Committee on Bird Protection, in an edition of over 100,000 copies, the first instalment of which is already in the hands of the Committee. It will be distributed judiciously (mainly through the coöperation of the American Humane Association) throughout the land. Copies may be had on application to the Committee, either through its chairman or any of the members, whose addresses are as follows: Geo. B. Sennett, Chairman, Am. Mus. Nat. Hist., N. Y. City; E. P. Bicknell, Secretary, P. O. Box. 2958, N. Y. City; J. A. Allen, Am. Mus. Nat. Hist., N. Y. City; William Brewster, Cambridge, Mass.; Montague Chamberlain, St. John, New Brunswick; William Dutcher, 51 Liberty St., N. Y. City; L. S. Foster, 35 Pine St., N. Y. City; Col. N. S. Goss, Topeka, Kansas; Geo. Bird Grinnell, P. O. Box 2832, N. Y. City; Dr. J. B. Holder, Am. Mus. Nat. Hist., N. Y. City.

A POWERFUL auxiliary in the work of Bird Protection is the 'AUDUBON SOCIETY,' recently founded by 'Forest and Stream.' This society is "an association for the protection of wild birds and their eggs . . . . Its membership is to be free to every one who is willing to lend a helping hand in forwarding the objects for which it is formed. These objects shall be to prevent, so far as possible (1) the killing of any wild birds not used for food; (2) the destruction of nests or eggs of any wild bird, and (3) the wearing of feathers as ornaments or trimming for dress. . . .

"The work to be done by the Audubon Society is auxiliary to that undertaken by the Committee of the American Ornithologists' Union; and will further the efforts of the A. O. U. Committee, doing detail duties to which they cannot attend. Those who desire to join the Audubon Society, established on the basis and for the purpose set forth, should send their names at once to the Forest and Stream, 40 Park Row, New York."

Recent issues of 'Forest and Stream' give ample evidence of the hearty support the Audubon Society is receiving from the public, the widely felt sympathy in its work, and the great aid it is already rendering in this excellent cause.

THE A. O. U. Code and Check-List was published March 20. It forms a volume of 400 pages, and is sold at a price so low as barely to meet the cost of publication. The Committee having the work in hand are at last through with what proved a very arduous task, which they spared no pains to thoroughly perform.

THE AUK:

A QUARTERLY JOURNAL OF

ORNITHOLOGY.

VOL. III. JULY, 1886. No. 3.

SOME BIRDS OF ARIZONA.

BY EDGAR A. MEARNS.

(Assistant Surgeon, U. S. A.)

Genus **Harporhynchus** Cabanis.

Red-vented Thrasher. **Harporhynchus crissalis.**
Leconte's Thrasher. **Harporhynchus lecontei.**
Palmer's Thrasher. **Harporhynchus curvirostris palmeri.**
Bendire's Thrasher. **Harporhynchus bendirei.**

Professor Coues has already pointed out (Birds of the Colorado Valley, p. 61), the especial interest attaching to the genus *Harporhynchus*, as represented in this general region. This genus, he states, "reaches its highest development in the Colorado Basin, where nearly all the known species occur, some of them in abundance; while several of them are entirely confined, so far as we now know, to this region. As much can be said of no other genus. *Harporhynchus* is, in fact, the leading feature of the Colorado avifauna, whether we consider the relative number of species there represented, or the extremely local distribution of some of them. The fringilline genus *Pipilo* offers much the same case; and there is a further singular parallelism between the two. Both

are represented, in the United States at large, by a single species, heavily and even richly colored, in comparison with the pale dull shades of the numerous species or races of the Coloradan region: in both cases there are species restricted to this Basin; in both, rounded wings shorter than the graduated tail, large strong feet, and terrestrial habits are conspicuous features in comparison with their respective allies. The parallel might even be pushed to the length of recognizing individual species of one genus as representatives of those of the other. *Pipilo aberti* is the counterpart of *H. crissalis* and several others are almost as clearly analogous."

Although highly characteristic of the Arizona avifauna, this genus is represented over the northeastern half of the Territory by a single species (*H. crissalis*), and that of local distribution, avoiding high altitudes, and hence absent from many large areas; but the southwestern half of Arizona, in greater part occupied by open desert plains extending eastward from the Colorado River, is inherited by all of the four species above named, occurring in greater or less abundance. Another species ("*Harporhynchus curvirostris* [*verus*]") is attributed to Arizona by Dr. Coues in the second edition of his 'Check List of North American Birds,' page 6; but, so far as known, typical *H. curvirostris* is limited, in its United States range, to the valley of the Rio Grande.

All of the Arizona species are of comparatively late discovery, the types of *H. crissalis* and *H. lecontei*, originally described in 1851 and 1858, by Messrs. Lawrence and Henry, respectively, having remained unique for years; while *H. curvirostris palmeri* and *H. bendirei* remained undescribed until 1872 and 1873, respectively. None of the species became at all well known until quite recently; but during the past few years much has been done to elucidate their life histories by Captain Bendire, Dr. Palmer, Messrs. Henshaw, Brewster, Stephens, and others.

I have embraced the present opportunity, when giving the results of my own study of the Arizona Thrashers, for which I have enjoyed exceptionally fine opportunities when travelling in various portions of the Territory during their breeding season, to bring together the scattered literature, and present something like a connected account of each species.

Without dwelling upon the characteristics of the genus as a whole, I will pause to notice some of the peculiarities of the species under consideration. All agree in the characters of an elon-

gated, graduated tail of somewhat decurved rectrices, and short, rounded wings; but the discrepancy in the relative size and form of the bill and extremities, is considerable. However, a glance at the accompanying table of comparative dimensions and ratios, will show that these four species form a continuous series in the order named. In *H. crissalis* and *H. lecontei*, the elongation of the bill and tail is coincident with the abbreviation of the wings and legs; and the arcuation and slenderness of the bill is exactly correlated to its attenuation, *H. crissalis* having the longest, slenderest and most arcuate bill, while *H. bendirei* has the shortest, stoutest and straightest.

TABLE I.—MEASUREMENTS OF SPECIES, AND RATIO OF THEIR DIMENSIONS TO THEIR ENTIRE LENGTH.

SPECIES.	Number of Specimens.	Length.	Alar Expanse.	Wing.	Tail.	Culmen from Base.	Culmen from Nostril.	Gape.	Tarsus.	Middle Toe and Claw.	Its Claw alone.
DIMENSIONS (*Averages*).—*Males.*											
Harporhynchus crissalis	12	305.5	326.3	100.7	143.5	38.4	30.4	42	33.9	30.4	8.1
Harporhynchus lecontei	3	284	319	101	132	32	24	36	32	30	8.2
Harporhynchus curvirostris palmeri	6	293	360	110	126	31.6	24.7	36.8	34.1	33.6	8.8
Harporhynchus bendirei	5	260	342	106	121	25.5	19.6	30.7	34	31.2	8
DIMENSIONS (*Averages*).—*Females.*											
Harporhynchus crissalis	10	303.9	316.7	97.6	142.5	38.1	30.1	41.2	33	30.2	8
Harporhynchus lecontei	4	277	312	97	126	32	24	36	31	28.9	8
Harporhynchus curvirostris palmeri	2	290	352	112	125	33.2	25.5	38.5	33.7	32.5	9
Harporhynchus bendirei	1	260	330	101	122	26	19	30	33	31	8
RATIOS.—*Males.*											
Harporhynchus crissalis		1.00	1.07	.33	.47	.13	.10	.14	.11	.10	.027
Harporhynchus lecontei		1.00	1.12	.36	.46	.11	.08	.13	.11	.11	.029
Harporhynchus curvirostris palmeri		1.00	1.23	.38	.43	.11	.08	.13	.12	.12	.030
Harporhynchus bendirei		1.00	1.29	.39	.45	.10	.07	.11	.13	.12	.030
RATIOS.—*Females.*											
Harporhynchus crissalis		1.00	1.04	.32	.47	.13	.10	.14	.11	.10	.026
Harporhynchus lecontei		1.00	1.13	.35	.45	.12	.09	.13	.11	.10	.029
Harporhynchus curvirostris palmeri		1.00	1.22	.39	.43	.11	.09	.13	.12	.11	.031
Harporhynchus bendirei		1.00	1.27	.39	.47	.10	.07	.12	.13	.12	.030

H. crissalis and *H. redivivus lecontei* are remarkable for their plain, unspotted plumage; while the former is unique in the genus in producing immaculate eggs.

H. crissalis is an inhabitant of wooded hillsides, rugged cañons, and the borders of streams at intermediate altitudes; but the other species are found in low, desert plains, spending much time among the cactuses.

Harporhynchus crissalis HENRY. RED-VENTED THRASHER.

Toxostoma crissalis HENRY, Pr. Phila. Acad. X, May, 1858, 117 ("New Mexico").

Harporhynchus crissalis BAIRD, Birds N. Am. 1858, pp. 351, 923; ed. of 1860, pl. 82 (Mimberes to Rio Grande, N. M., Henry; Fort Yuma, Cal., Ives).—HENRY, Pr. Phil. Acad. XI, 1859, p. 107.—SCL. P. Z. S. 1859, p. 339 (critical).—BAIRD, Review Am. Birds, 1864, pp. 47, 352 ("Region of the Gila River, to Rocky Mts.").—COUES, Proc. Phila. Acad. XVIII, 1866, p. 65 (Arizona).—COOPER, Am. Nat. III, 1869, p. 473; *ib.* Birds Cal. I, 1870, p. 18, fig.—COUES, Key, 1872, p. 75 ("Valley of the Rio Grande and Colorado"); *ib.* Am. Nat. VI, 1872, p. 370 (descr. nest and eggs); VII, 1873, p. 328, fig. 67.—BREWER, Proc. Bost. Soc. Nat. Hist. XVI, May 21, 1873 (descr. eggs, taken in Arizona, by Capt. Charles Bendire).—BD. BR. & RIDGW. N. Am. Birds, I, 1874, p. 47; III, 1874, p. 500 ("Region of the Gila River, to Rocky Mountains; Southern Utah").—YARROW & HENSH. Rep. Orn. Specs. 1874, p. 6.—HENSH. Rep. Orn. Specs. 1874, p. 40 (Saint George, Utah), p. 97 (Arizona); *ib.* List Birds Arizona, 1875, p. 154; *ib.* Zoöl. Expl. W. 100 Merid. 1876, p. 158 (Arizona).—COUES, Birds Col. Val. 1878, p. 73, fig. 13.—STEPHENS, Bull. N. O. C. III, April, 1878, p. 93 (Gila River in New Mexico, and in Arizona).—RIDGW. Catal. Birds N. Am.<Proc. U. S. Nat. Mus. III, 1880, p. 167.—BREWST. Bull. N. O. C. VI, 1881, p. 72; VII, 1882, pp. 69, 74.—COUES, Check List N. Am. Birds, 1882, p. 26.

Harporhynchus crissales BAIRD, Ives's Rep. Colo. Riv. pt. V, 1861, p. 6.

Red-vented Thrasher; Henry's Thrush; Crissal Thrasher, Authors.

HABITAT.—New Mexico, Arizona, Southern Utah, Nevada and California in the Colorado Valley, and probably extending southward into Sonora, Mexico; absent from such portions of this region as are over 5000 feet in altitude.

DESCRIPTION.—*Adults in breeding dress* (Nos. 4499, ♀ ad., February 18, 1886, and 4502, ♂ ad., February 20, 1886, Fort Verde, Arizona; E. A. M.), Above nearly uniform ashy-brown; below a paler shade of the same but clearer ashy; under tail-coverts and crissum chestnut-rufous, this color

fading as it passes forward to the epigastrium into pale rusty-yellow; tibiæ and lining of wings washed with the same. The chin, middle of the throat, maxillary stripes and spotting upon cheeks nearly white. There are narrow blackish stripes upon the sides of the throat, cutting off the white maxillary stripes above them. The outer rectrices have conspicuously paler, rusty tips. Under plumage lead-color. Irides brownish straw-color. Bill, blackish, or very dark neutral tint. Legs and feet dusky olivaceous-brown; claws plumbeous-black.

TABLE II.—MEASUREMENTS OF *Harporhynchus crissalis.*

No.	Sex and Age.	Locality.	Date.	Length.	Alar Expanse.	Wing.	Tail.	Culmen from Base.	Culmen from Nostril.	Gape.	Tarsus.	Middle Toe and Claw.	Claw alone.
2712	♂ ad.	Fort Verde, Arizona.	April 10, 1884.	306	320	99	144	40.4	32	44.5	34	31	9 7.6
2719	♂ ad.	" " "	April 11, 1884.	305	318	95	140	38.5	30.5	42	33	29.4	
2730	♂ ad.	" " "	May 2, 1884.	300	327	99	143	38	30	42	36	32	8
2699	♂ ad.	" " "	June 4, 1884.	316	330	100	142	43	34	45	35	32	9
3306	♂ ad.	" " "	Sept. 10, 1884.	313	322	99	148	38	30	40	33	30	8
3335	♂ ad.	" " "	Dec. 17, 1884.	315	330	100	145	39	31.5	43	33	31	9
3743	♂ ad.	" " "	Feb. 5, 1885.	290	315	97	137	36	30	42	34	30	8 7.5
3767	♂ ad.	" " "	Feb. 17, 1885.	315	332	103	152	39	31	41	33	31	7.5
3938	♂ ad.	Deming, New Mexico.	April 20, 1885.	294	333	105	136	39	31	42	35	30	8
3948	♂ ad.	" "	April 22, 1885.	305	333	102	137	37	30	41	35	30	8
3959	♂ ad.	Chiricahua Mts., Arizona.	April 30, 1885.	298	326	100	150	35	25	40	34	31	8 7
4502	♂ ad.	Fort Verde, Arizona.	Feb. 20, 1886.	309	330	105	148	38	30	42	31.5	27	
2709	♀ ad.	Fort Verde, Arizona.	April 29, 1884.	290	304	92	138	38	26.5	39	31.5	31	8
2731	♀ ad.	" "	May 2, 1884.	297	311	92	134	38	30	41	34	30	8
3018	♀ ad.	" "	June 16, 1884.	300	313	95	133	38	30.5	41	32	31	9
3600	♀ ad.	Near Prescott, Arizona.	Nov. 25, 1884.	305	320	93	148	38	32	41	33	29	8
3604	♀ ad.	Fort Verde, Arizona.	Dec. 3, 1884.	303	317	95	143	39	31	41	34	31	9 7
3695	♀ ad.	" "	Jan. 10, 1885.	310	330	102	145	39	30	42	34	30	8
3917	♀ ad.	Deming, New Mexico.	April 20, 1885.	313	322	101	147	39	31	43	34	30	8
4279	♀ ad.	Fort Verde, Arizona.	Nov. 13, 1885.	312	320	102	149	41	32	43	33	31.5	9 7
4309	♀ ad.	" "	Nov. 25, 1885.	297	307	99	143	36	29	41	32	29	7.5
4499	♀ ad.	" "	Feb. 18, 1886.	312	323	100	145	38	29	40	33	30	
Average of twelve males				305.5	326.3	100.7	143.5	38.4	30.4	42	33.9	30.4	8.1
Maximum of twelve males				316	333	108	152	43	34	45	36	32	9
Minimum of twelve males				290	315	95	130	35	25	40	31.5	27	7
Average of ten females				303.9	316.7	97.6	142.5	38.1	30.1	41.2	33	30.2	9
Maximum of ten females				313	330	102	149	39	32	43	34	31.5	9 7
Minimum of ten females				290	304	92	133	36	26.5	39	31.5	29	

Comparison of these specimens with a very large series of adults taken at all seasons shows no sexual variation whatever in the plumage and very little difference in size. Winter specimens in new plumage are somewhat darker, while summer examples become much bleached, and the plumage worn to shreds, the rectrices having little left but their shafts. About a dozen of the specimens before me are more or less strongly washed with pale rusty yellow upon the under surface.

A young nestling (No. 3026, ♀, June 16, 1884, Fort Verde, Arizona; E. A. M.), in which the quills are only half grown out, has all of the markings of the adult. The throat, black stripe below the ramus of the jaw, and under tail-coverts are exactly as in adults; and the general plumage differs only in having a redder, rustier tone, most pronounced upon the auriculars, upper tail-coverts and tips of the rectrices. The abdomen is paler, almost whitish. Legs more plumbeous than in adults. This slight discrepancy in coloration is seen through a series of young specimens up to the period of the autumnal moult, when they come out exactly like their parents only fresher and darker, and can then only be distinguished from fully adult examples in fresh plumage by anatomical characters.

DIMENSIONS.—Male. Length, 305; alar expanse, 326; wing, 100; tail, 143; culmen from base, 38; culmen from nostril, 30; gape, 42; tarsus, 34; middle toe and claw, 30; claw alone, 8. Female. Length, 304; alar expanse, 317; wing, 98; tail, 142; culmen from base, 38; culmen from nostril, 30; gape, 41; tarsus, 33; middle toe and claw, 30; claw alone, 8.

HABITS.—I first met this Thrasher on March 24, 1884, about fifteen miles east of Prescott, when riding from Fort Whipple to Fort Verde, Arizona. When we left Whipple in the morning the ground was covered with snow; but a ride of a few miles, during which we descended several hundred feet, brought us to a changed climate. A few Crissal Thrashers were then occasionally noted among the thickets of scrub oak, and their numbers increased until we reached the Verde Valley.

The Red-vented Thrasher is abundant all over the Verde bottom land, preferring mesquite thickets and the vicinage of streams. One of the first traits that we noticed about it was that it possessed a song of very remarkable scope and sweetness, having all the power of the Mockingbird, and an evenness and perfect modulation which that bird may well envy. It is one of the few birds that truly sing; and it shares, in this Territory, this rare gift with its three congeners—Bendire's, Palmer's and Le Conte's Thrashers. It is no warbler of pretty ditties, nor yet a medley singer like the Eastern Thrasher or the Mockingbird, but discourses pure, natural music from the top of the tallest bushes, where it perches, with its tail hanging down, in precisely the same attitude as the Brown Thrasher of the East. Its season of

song is more protracted than that of any other species with which I am familiar. Its best efforts are put forth during the mating season, in February, March, and April; but, except during July and August, when the heat becomes intense and the Thrasher's plumage is bleached almost to whiteness, and worn to tattered shreds amongst the thorny chapparal in which it finds food and some shelter from the sun, it sings commonly throughout the year. The warm sunshine of a winter's day suffices to bring out its full song, which perchance has been hushed by a cold snap and flurry of snow. At first come a few notes of doubtful confidence, barely sufficing to remind one that it *can* sing; then a thoughtful, somewhat desultory song, till the power of the tropical sun asserts itself, or the genial influence of its mate is felt, when this harmonious soliloquy grows into a serene and dignified performance that challenges attention and excites admiration. The Crissal Thrasher is a shy bird, and only sings when it fancies itself secure from intrusions upon its solitude; but, about ranches, where it associates with man, it loses some of its wildness and becomes more confident and trusting. After the autumnal moult, when berries, grapes, and other acceptable food is plentiful, there is a distinct revival of song in this species. It has no loud call-note like the other species.

It is, like the rest of the Thrashers, highly terrestrial, and runs swiftly upon the ground from one bush to the next, often jetting its long tail upward. It mounts to the bush-tops to sing by hopping from branch to branch, and clambers through dense, spiny brushwood with surprising agility. In general it may be set down as a shy bird, though at times becoming quite familiar. It makes but little use of its short, rounded wings as a rule, but occasionally makes long flights across a cañon or valley, setting its wings and soaring, like Gambel's Quail.

Before the end of April young birds were seen that were already strong on the wing and appeared to be taking care of themselves, showing that this species breeds early. As is the case with many birds of this warm climate, its season of reproduction is unusually extended. I did not find its nest until the 3d of July, when one was found in a patch of sage-brush, built in a bush, close to the ground. Its presence was betrayed by the actions of the male bird. The female was sitting upon three eggs, but skulked off upon the ground, among the bushes, and was immediately lost sight of.

Another nest was discovered on June 14, in an isolated mesquite grove. It was placed upon a horizontal bough of a large mesquite-bush (*Prosopis* [*Algarobia*] *glandulosa*), where it made a conspicuous object, owing to its bulk and exposed position. It was well built and contained two eggs, resembling those of the Robin. The proprietors of this nest divided their attention between the care of their nest and a family of young not yet capable of shifting for themselves. Two days later this nest was taken with its full complement of four eggs, the female parent, and a pair of the young of the previous brood. The plumage of the latter is fresh and soft, contrasting strongly with the worn and faded feathers of the old bird. The only difference in the dress of the young in first plumage from the adult consists in the much darker tail, and brighter plumage generally, of the young bird. If any tangible differential characters can be assigned to the young, they may be summed up by saying that the tail and colors generally are darker and brighter, the markings more distinct, and the castaneous of the underparts nearly confined to the tail-coverts and crissum, instead of tingeing the abdomen as in adults. The irides, in birds just hatched, are whity-brown, gradually becoming paler, and finally assuming the yellowish color, which never becomes bright yellow even in adult birds. The tail of the parent exhibits an appearance which is common at this season: the central tail-feathers, being subjected to the effects of light far more than the lateral ones which they cover and protect when the tail is closed, are bleached to pale ashy-drab, quite different from the outer ones. The same is noted in the case of the White-winged Dove (*Melopelia leucoptera*) and other species in this land of perpetual sunshine. The eggs of this set are elongated oval in shape, rather pointed, and measure 29 × 20, 29 × 19.5, 30 × 20, and 28 × 20.5 mm. respectively. The nest was coarsely made of heavy twigs without, and finer vegetable materials within.

The nest just described, and another containing four young about a week old, found in a dense haw-bush a couple of days later, are the only ones that I have examined containing so large a complement; and I am inclined to the opinion that three is the usual number.

For several months succeeding my arrival at Fort Verde, I studied the ornis of the Valley without the aid of books, and had

in hand a fine suite of Red-vented Thrashers when my little library arrived; then I was astonished, on turning to Dr. Coues's 'Birds of the Colorado Valley,' to read at the commencement of his account of this species: "I have never seen the bird alive." This is a remarkable instance of the possibility of a common species being overlooked, even in the midst of its distributional centre; for I have repeatedly found it but a few miles from Fort Whipple (but at considerably lower altitude), where Dr. Coues was stationed at different times; and at Verde the species is always common, and nests each year in a patch of mesquite within a hundred yards of the quarters he occupied when Post Surgeon here.

On February 18, 1886, wishing to have a fresh example of this species in hand when writing its description, I had but to take my gun and stroll into the nearest mesquite thicket and shoot a specimen, which proved to be a female. When skinning it the next day, I suspected that it had already oviposited even at this early date, and upon dissecting it obtained positive proof that it had laid two eggs. The next morning I returned to the place where I shot the specimen, and immediately found its nest in the mesquite-bush whence it was first flushed two days before. The male parent was sitting upon the eggs, but slipped nimbly to the ground and ran out of view among the shrubbery, and was only secured after several visits made to the nest during the day. These specimens being in perfect plumage were selected for the types of the foregoing description. During the thirty days preceding the discovery of this nest, the lowest temperature of each twenty-four hours, taken with the minimum thermometer, averaged 32° F., with extremes of 24° and 42° F.; and the temperature for the same period, taken with the maximum thermometer, averaged 67° F., with extremes of 75° and 55° F. The nest was saddled upon the fork of a mesquite-bush, about four feet from the ground, in part supported by the thorny branches of a neighboring bush. It rested upon a pile of sticks, and was surrounded by a bristling array of spiny 'haw' and mesquite twigs of moderate size; within this barricade the nest proper was placed; it is bowl-shaped, and, with the exception of a few feathers, composed entirely of vegetable substances very neatly felted into a compact, warm nest. The principal materials are fine withered grass, stems of plants, and shreddy inner bark. Externally it measures 150 mm. in

height by 300 mm. in width; the internal depth, 45 mm.; internal diameter, 90 mm. The two eggs are uniform bluish-green, darker and greener than specimens that have been in my cabinet nearly two years, which have faded to a bluish tint resembling a Robin's egg. Thinking that the green color might be measurably due to the yellow yolk contained, I emptied one shell of its contents, after which it appeared to be even clearer greenish than before. The eggs measure 30 × 20 and 29 × 20 mm. respectively.

Crissal Thrashers inhabit by preference bushy places in the vicinity of water courses in the lower valleys, but range upward upon the oak-clad foothills to an altitude of 5000 feet, or in autumn occasionally even a little higher. The Verde Valley here has an altitude of 3,500 feet, and a much warmer climate than the bordering mesas and foothills, which in winter are often deeply covered with snow. Although they may be occasionally met with in the snow belt, most of them descend into the warmer valleys in severely cold weather. I have seen numbers of them feeding upon the bare sand upon the edge of the Verde River after a snowstorm. Making proper allowance for their being more conspicuous in winter on account of the absence of foliage, the species is undoubtedly far more plentiful in the Verde Valley during the winter season than in summer, when many of those which winter here move upward into the zone of scrub oaks, in which they breed in abundance wherever they can find water within a convenient distance. The exodus takes place about the end of February, after which the species becomes comparatively scarce; and by the middle of March nearly all of those remaining are settled and occupied with domestic affairs. In the surrounding highlands it breeds late in the spring. Nests were found upon the banks of Big Bug and Ash Creeks, at an elevation of nearly 5,000 feet, which contained fresh eggs as late as the middle of May. Some were built in oak bushes, and one conspicuously located in a swinging grape-vine six feet above the ground.

The Red-vented Thrasher is omnivorous. It feeds largely upon berries and wild grapes. A thorny species of 'haw' is plentiful along the Rio Verde, which bears an abundance of berries, of green, red, and dark glaucous-blue colors, according to the degree of maturity; upon these the Thrashers delight to feed. Insects constitute an important article of their diet at all seasons.

I found this Thrasher tolerably common in the vicinity of Fort Mojave in May, upon both the Arizona and Nevada shores of the Colorado, and also at the Needles farther down the River, in California, where the species has been taken as far south as Fort Yuma, opposite the mouth of the Gila River. Near the Colorado River, at the mouth of Diamond Creek, it was found later in the season; but, farther east along the Colorado Cañon, I did not meet with it. Even in the deep, warm cañon of Cataract Creek, where Mockingbirds were singing in November long after their departure from the Verde Valley, none were found. Dr. Palmer found it breeding at Saint George, in Southern Utah. It is very abundant in the Agua Fria Valley, west of the Rio Verde, and is found all the way to the confluence of that stream with the Gila River, from which point I have traced it as far eastward along the Gila as the mouth of the San Carlos River, near which many were heard singing among the dreary sandhills of the Indian Reservation, and thence northward through Tonto Basin. Others have found it along the Gila in New Mexico; but I have only noticed it farther east, about Deming, New Mexico, in the dry course of the Mimbres River, near the point where it was first discovered by Dr. T. C. Henry of the Army.

Unlike the three remaining species, it is rarely found in desert country away from streams. When crossing the hundred miles of desert between the Gila River near Maricopa and Tucson, it was not positively identified once, although I thought I saw one near Picacho Station, when returning in May. Along the Santa Cruz and Rillito Rivers, near Tucson and Fort Lowell, the species was again found in small numbers, and was abundant thence, in suitable localities, as far east as Bowie Station, where it was found to breed, as well as in the neighboring foothills of the Chiricahua Mountains, where I found a nest containing two newly-hatched young and an egg on the last day of April. The young were on wing in the dry plain of San Simon Valley below. From the abundance of this species there, I do not doubt that it ranges southward into Mexico.

Harporhynchus lecontei. LECONTE'S THRASHER.

Toxostoma lecontei LAWR. Ann N. Y. Lyc. V, Sept., 1851, p. 109 (near Fort Yuma).—BAIRD, Stansbury's Rep. Expl. Gt. Salt Lake, Utah, 1853, p. 329 ("Gila River").

Harporhynchus lecontei BONAP., Comptes Rendus, XXVIII, 1854, p. 57; *ib.* Notes Orn. Delattre, p. 39.—BAIRD, U. S. Mex. Bound. Rep. 1859, Birds, p. 12, pl. 12.—COOPER, Proc. Cal. Acad. Nat. Sci. 1861, p. 121 (Mojave River, Cal.)—BAIRD, Review Am. Birds, 1864, pp. 47, 452 ("Gila River; Fort Yuma"). COUES, Pr. Phila. Acad. 1866, p. 65 (near Fort Mojave, Arizona).—COOPER, Am. Nat. III, 1869, pp. 188, 473.—BREWST. Bull. N. O. C. VI, 1881, pp. 66, 68 (5th specimen; taken 10 miles northwest of Phœnix, Arizona).—STEPHENS, *ib.*, p. 66.—BREWST. *ib.*, VII, 1882, pp. 70-75 (2 spec. taken by F. Stephens 15 miles W. Maricopa, Arizona).—STEPHENS, Auk, I, 1884, pp. 355-358 (Agua Caliente, Col. Desert, Cal.); *ib.*, Auk, II, 1885, pp. 229-231 (Sonora, Mexico).

Harporhynchus lecontii BAIRD, Birds N. Am. 1858, p. 350, pl. I; ed. of 1860, p. 350, pl. 50 ("Fort Yuma, Gila River").—SCL. P. Z. S. 1859, p. 339.—COOPER, Birds Cal. I, 1870, p. 17, fig. (Fort Yuma to Mojave River, Cal.).—COUES, Ibis, II, 1866, p. 259.—BREWST. Auk, II, 1885, p. 196 (near Port Lobos, Sonora, Mex.).

Harporhynchus redivivus lecontei COUES, Key, 1872, p. 75 ("only two specimens known." Near Fort Yuma, *Leconte;* near Fort Mojave, *Coues*).—COUES, Am. Nat. VII, 1873, p. 328.—BD., BREW., & RIDGW. N. Am. Birds, I, 1874, p. 44, pl. 4, fig. 3.—HENSH. List Birds Arizona, 1875, p. 154.—RIDGW. Catal. Birds N. Am. < Proc. U. S. Nat. Mus. III, 1880, p. 167; *ib.* Proc. U. S. Nat. Mus. V, p. 45.

Harporhynchus redivivus lecontii COUES, Check-List N. Am. Birds, 1882, p. 26; *ib.* Birds Col. Val. 1878, p. 70, fig. 12.—HOLTERHOFF, Bull. N. O. C. VIII, 1883, p. 48 (descr. nest and eggs from Flowing Wells, middle of the Colorado Desert, Cal.—*Cf.* Am. Nat. for March, 1881, where this 'find' is first described).

Leconte's Thrasher, Authors.

Yuma Thrasher, COUES, Birds Col. Val. 1878, p. 70.

DESCRIPTION.—*Adult in Spring* (No. 3857, ♀ ad., March 30, 1885, 6 m. N. of Maricopa, Arizona: E. A. M.; No. 4010, ♂ ad., May 11, 1885, between Casa Grande and Sweet Water, Arizona: E. A. M.). General color above pale ashy-drab; below much paler, tinged with ochraceous. Chin and upper part of throat, white, bordered by indistinct dusky submaxillary stripes. Cheeks and maxillæ whitish, with dusky spotting. The color is yellowish white in the median line below, shading very gradually to ochraceous upon the flanks, crissum, and under tail-coverts. The old, faded rectrices are brownish-drab; the new quills clear dark fuscous, having ashy tips and outer webs to the external feathers. The concealed bases of the feathers are plumbeous.

Young in perfect first plumage (No. 4009, ♂, May 11, 1885, near Casa Grande, Arizona: E. A. M.). Excepting the quills and upper tail-coverts, the coloring is scarcely darker than in adults taken at the same season; and new quills in adults are quite as dark as the fresh ones of the young. The markings are the same, there being no spotting anywhere. The tone is a trifle rusty upon the back; and the upper tail-coverts are light red-

dish-brown. The wings are clearer ashy than in faded adults, and all of the wing-feathers faintly edged with brownish yellow. The under tail-

TABLE III.—MEASUREMENTS OF *Harporhynchus lecontei.*

No.	Sex and Age.	Locality.	Date.	Length.	Alar Expanse.	Wing.	Tail.	Culmen from Base.	Culmen from Nostril.	Gape.	Tarsus.	Middle Toe and Claw.	Claw alone.
3858	♂ ad.	Six miles north of Maricopa, Arizona	Mar. 30, 1885.	284	323	102	134	32	24	36	32	30	8
4010	♂ ad.	Between Casa Grande and Sweet Water, Arizona	May 11, 1885.	282	313	100	128	33	25	37	33	30	8.5
4031	♂ ad.	Desert Station, Arizona	May 14, 1885.	285	320	102	133	32	24	36	32	30	8.5
3857	♀ ad.	Six miles north of Maricopa, Arizona	Mar. 30, 1885.	280	310	95	127	33	24	38	32	29	8
3860	♀ ad.	Maricopa, Arizona	April 1, 1885.	283	316	101	133	33	25	37	31	28	8
4011	♀ ad.	Between Casa Grande and Sweet Water, Arizona	May 11, 1885.	274	311	95	120	33	25	37	32	29.5	8
4032	♀ ad.	Desert Station, Arizona	May 14, 1885.	272	310	97	124	30	22	33	30	29	8
4009	♂ juv.	Near Casa Grande, Arizona	May 11, 1885.	278	319	98	125	29	22	34	33	30	8
		Average of three males		284	319	101	132	32	24	36	32	30	8.2
		Maximum of three males		285	323	102	134	33	25	37	33	30	8.5
		Minimum of three males		282	313	100	128	32	24	36	32	30	8
		Average of four females		277	312	97	126	32	24	36	31	28.9	8
		Maximum of four females		283	316	101	133	33	25	38	32	29.5	8
		Minimum of four females		272	310	95	120	30	22	33	30	28	8

coverts and anal region are paler. The tail is deep fuscous, inconspicuously tipped with rusty-ash. It presents the following dimensions: Length, 278; alar expanse, 319; wing, 98; tail, 125; culmen (chord), 29; culmen, measured from nostril, 22; gape, 34; tarsus, 33; middle toe and its claw, 30; the claw alone, 8.

A comparison of five adults with the two above described shows some variation in the shade of drab above, which is yellowish in the palest specimens—those taken latest in the season—and grayish in those in which the plumage is newer. The same is the case with the under plumage, which in one specimen is almost white, in others variously tinged with pale ashy-drab and ochraceous. The remiges are much paler than the other quills, and grayish. Most specimens exhibit a pectoral band contrasting with the white throat and pale color of the belly. The central rectrices, which appear to be usually moulted last, are in some specimens shortened and abraded, their pale drab color and worn condition being strikingly different from the new outer feathers. The irides are reddish-hazel. Bill plumbeous-black. Tarsi and feet varying from plumbeous-brown to greenish-olive; claws from dusky olive to plumbeous black.

DIMENSIONS.—Average of three males: Length, 254; alar expanse, 319; wing, 101; tail, 132; culmen (chord), 32; culmen from nostril, 24; gape, 36; tarsus, 32; middle toe and claw, 30; its claw alone, 8.2; graduation of tail, 16. Average of four females: Length, 277; alar expanse, 312; wing, 97; tail, 126; culmen (chord) 32; culmen from nostril, 24; gape, 36; tarsus, 31; middle toe and claw, 29; its claw alone, 8; graduation of tail, 17.

HISTORICAL RÉSUMÉ.—This Thrasher is at once the oldest and least known species of the genus in Arizona. Originally described by George N. Lawrence in 1851, from a specimen taken at the mouth of the Gila River, near Fort Yuma, it was not again met with by naturalists for a decade, when Dr. Cooper added it to the avifauna of California, stating that it was not uncommon in certain portions of the route between the Colorado Valley and the coast slope of California. It was so very wild that he could obtain but two specimens. He found an empty nest built in a yucca, similar to that of *H. redivivus*.

In 1865, Dr. Coues took a fourth specimen, in the month of September, near the Colorado River above Fort Mojave. The great work on North American Birds, by Baird, Brewer and Ridgway, treats of the subspecies *lecontei* before the original species, and adds nothing to previously published accounts.

The fifth specimen was taken by Mr. F. Stephens, on February 21, 1880, in Central Arizona, as reported by Mr. Brewster. He writes: "I took this specimen ten miles north-west of Phœnix. The locality was a bushy desert with large cacti.

At the time, it was singing in a similar manner to *H. palmeri*, only very sweetly. I should consider them excellent songsters. They do not mock other birds and the song is unlike that of *H. redivivus.*" This bird and another seen near the same place were the only ones met with by Mr. Stephens in several years' experience, although he thrice traversed the route through California where Dr. Cooper found it; but he afterwards secured two more, on July 5, 1881, about fifteen miles west of Maricopa, Arizona, in a locality which he describes as follows: "Near the middle of 'Forty-five-mile Desert' between Maricopa Wells and Gila Bend. No cholla or other cactuses in the immediate neighborhood, but some giant cactuses about a mile away in the hills; a few mesquites and much scattered low brush in the vicinity; nearest water twenty miles away."

The nest and eggs of this rare species were discovered by Mr. E. Holterhoff, Jr., in the middle of the Colorado Desert, in California, at a station called Flowing Wells, and described in the 'American Naturalist.' Vol. XV, No 3, March, 1881.

In 1884, Mr. F. Stephens again found some of these Thrashers in the extreme western end of the Colorado Desert, about the end of March, and has given a very interesting account of this species and others (*cf.* Auk, I, pp. 353-358, October, 1884) observed by him near Agua Caliente, California, in which he dwells upon its exceeding wildness, notes its lengthy breeding season, and describes its supposed nest, built in the centre of a cholla cactus.

The only extra-limital record of the occurrence of Leconte's Thrasher was published by Mr. William Brewster, in 'The Auk' for April, 1885, p. 196; and his notice was added to by Mr. Stephens,* who took the specimens about fifteen miles inland from Port Lobos, on the Gulf of California. In this article Mr. Brewster mentions "a dozen or more" specimens, including all of those collected by Mr. Stephens, as having passed through his hands. Eight specimens collected by myself, during the spring of 1885, brings the number of known specimens up to about two dozen.

HABITS:—Any one who traverses the desert between Phœnix and Maricopa will probably catch sight of at least one of these pallid Thrashes, but may consider himself fortunate if he

* Auk, II, July, 1885, pp. 229-231.

captures a single specimen. It was in this uninviting region that I first saw Leconte's Thrasher.

The ride from the Gila River to Maricopa, on March 30, 1885, was through a desert, bordered by distant foothills, along the base of which are forests of giant cacti, some of which were found along the road. A sluice of the Gila was crossed a few miles from the river, along which were some cottonwoods and a quantity of tulé (*Scirpus*) and cat-tails; also plenty of green grass, in which Meadow Larks, and Thrashers of some species, were singing, the latter in mesquites. The rest of the country was bare of grass, sandy, and covered with scattered sagebrush and cacti (*Opuntia*, *Echinocereus*, *Cereus*, and *Echinocactus*), with occasional bare areas of white sand, where the sun's reflection was terrible. A rare squirrel (*Spermophilus tereticaudus*) was here abundant; and all of our superfluous energy was expended early in the day, which was intensely hot, in capturing some of them. As we rode along in the condition of stolid indifference to everything, which ensues after the limit of human endurance is reached, numberless lizards and horned toads of varied hues sped unheeded from our trail, until the orderly riding behind me exclaimed: "Doctor, what are they!" and pointed with his carbine to a pair of whitish birds upon the sand, with their tails cocked up over their backs, which I saw at a glance were Leconte's Thrashers. This pair, both of which I shot, were the only ones seen that day. They ran and hid with as much agility and cunning as the Chapparal Cock. As I pursued them, some large white lizards scuttled into their holes at the side of a sandy arroyo, which, in the glare of the sun, resembled the Thrashers, than which they were scarcely more fleet, both running before me with great speed, and disappearing from view. They seldom arose from the ground, and then only skimmed over the brushwood a little way, and then ran swiftly on in zig-zags, amongst the bushes and cactuses. They were secured with great trouble and exertion, for which they were doubtless the more highly prized. The female's ovary showed that four eggs would constitute the complement, and that they would soon have been deposited.

As so frequently happens when once the ice is broken, my acquaintance with Leconte's Thrasher grew apace after this introduction. The following day was spent at Maricopa, at which

place I sincerely trust none of my readers may be required to sojourn, at the same season of the year, unless it be for the purpose of capturing some of these wild will-o'-the-wisps, in which case they could scarcely select a more favorable collecting ground; but, unless more fortunate than I was, their toil will be but ill requited. The region is a desert waste of sand, covered in places with patches of sagebrush and groves of cholla cactuses, with a few mesquites and shrubs scattered along the dry arroyos.

I left camp in company with Dr. Paul Clendenin in the early morning, and these Thrashers were heard singing soon after, and were hunted until we were completely exhausted from following them, but we were obliged to return to our tent without a single specimen. Perched upon a mesquite-top, one would sing so loudly that it could be distinctly heard for more than a mile,—long before it could be seen upon the open plain, and it was usually off to another more distant perch about the time that we discovered it. As the day advanced and the scorching sun rose high in the sky, the Thrashers one by one stopped singing, forsook the bare mesquites, and ensconced themselves among the sparse brushwood along the dry water-courses, where we surprised several of them; but they always managed to retreat so adroitly, whether by running among the bushes or flying close to the earth, that we were completely baffled at each attempt to shoot them. When flying they dropped low down, and performed a part of each flight in a tortuous course under cover of the sage brush, ascending to the top of a mesquite like a Shrike. Their flight is, therefore, very difficult to follow; moreover the singing of several birds in different directions added to our confusion and diverted our attention.

On April 1 we marched from Maricopa to Casa Grande. As before, the Thrashers were heard singing during the early morning. Their song is remarkable for its loud, rich tone, and is at least as fine as that of any other of the genus. Their speed when running upon the ground is truly wonderful. A pair of them were running upon the railroad, and for a little way kept ahead of our trotting horses with ease. One of them was afterwards shot upon a bush, whence its mate flew out at the report, and was brought down upon the wing, but was so fleet that we were unable to catch it. Although a number of them were seen, and every effort made to secure more specimens, only one was taken.

On the 3d of April, after passing the foot of Picacho Peak—a high castellated butte to the right, which for several days had been a prominent landmark—we rode through a grove of 'sohuaras' (*Cereus giganteus*), among which were many arborescent cacti, in which were found the nests of all three of the desert species of Thrasher. That of *H. lecontei* was built in a cholla cactus seven feet from the ground, and closely resembles another, to be presently described. It contained one egg, having a ground-color of greenish-blue of a deeper hue than in *H. palmeri*, sparingly spotted all over with brown and lavender, the spots largest at the great end, where they tend to accumulate and form a wreath near that extremity. It measures 19 × 29 mm. This is the most eastern point at which the species has yet been found.

When returning over this route, between Casa Grande and Sweet Water, on the 11th of May, I shot a young Leconte's Thrasher; and when near Sweet Water took a pair of adults, and positively identified and secured their nest and three fresh eggs. They were first seen in the bush in which the nest was built, but flew out of sight when approached. After examining the nest, I concealed myself under a neighboring mesquite, in a position that was scarcely tolerable, on account of the burning heat radiated from the white sand. The sharp *whit* of the female kept me apprised of her whereabouts. At length, when I was almost roasted, she flew into the mesquite and almost immediately took her place upon the eggs. A chirping call from me quickly brought her to the top of the bush, where I shot her. With the male the case was different. It required a chase of an hour to secure him, and he would certainly have escaped were it not for his persistency in returning to the nest as often as lost sight of. His flight was often low, among the bushes, and impossible to follow with the eye; but, when soaring upward into a bush, he was usually detected. The sharply reiterated *whit*, or *quit*, also served me to keep track of him. At length I winged him at long range when flying, and then had an exciting chase upon the ground, shooting at him as I ran. His dexterity in running and hiding among the scattered greasewoods was admirable. This nest was placed in a mesquite, at a height of six or eight feet. It rested upon a fork and received additional support from a neighboring branch. It was composed of fine

grasses and weeds, the inner nest resting upon a mass of large sticks, loosely placed. The nest-lining was of grass and a few feathers. In shape the eggs are an elongated oval, tapering to a point at the small end, instead of being rather rounded and obtuse as in *H. palmeri*. Their ground-color is greenish-blue, somewhat deeper than in the egg of Palmer's Thrasher. One has large blotches of yellowish-brown and lavender sparingly scattered over the egg, a few extending nearly to the small extremity. In the others the marks are of the same colors, but reduced to fine spots, quite numerous, and confluent near the great end, but scarcely extending to the opposite extremity at all.

Leconte's Thrasher was seen at several points between Casa Grande and Phœnix during May, and was still singing. Upon the desert a few miles north of Phœnix I took a mated pair, on the 14th, in very nearly the same locality at which Mr. Stephens captured the fifth known specimen, in 1880. At this place, for the first and only time, I found all four of the Arizona Thrashers together.

[*To be continued.*]

THE NORTH CAROLINA MOUNTAINS IN WINTER.

BY CHARLES F. BATCHELDER.

ALTHOUGH of late years ornithologists have been ransacking nearly every accessible corner of this continent, they have, strangely enough, neglected the mountain region of the Southern Alleghanies. There seems to have been an impression that the birds of the Atlantic States were so well known that it would be idle to look for important discoveries there, where the fathers of our science had done their work, so the tide has been setting to the newer regions of the West. In truth, the earlier ornithologists were necessarily far from thorough in their explorations, and there have remained some corners of the field in which they worked where there is yet much to be gleaned. Such is the case with our southern mountains. Magazine writers have enlarged upon the beauties of their scenery, geologists and botanists have visited them, and have brought to light many interesting discov-

eries, but to the ornithologist it has remained until lately an unknown land.

Mr. William Brewster has the credit of being practically the first in the field, and his hurried, but most successful, exploration of the region last season has at length given us an accurate knowledge of its summer fauna. Its bird life at other seasons being still merely a subject for conjecture, I gladly seized an opportunity last December of investigating to a slight extent its winter fauna.

In the last number of 'The Auk' Mr. Brewster has given such an excellent description of the physical features of the country, and of the general character of its vegetation, that it is quite unnecessary for me to say more on this subject. In winter, of course, with the exception of the Coniferæ, the rhododendrons, laurel, and a few smaller shrubs, the woods are leafless. The weather during my stay was with few exceptions all that could be wished, cloudless skies and an equable temperature being the rule. It was cold enough for the ground to freeze hard almost every night, but the power of the sun's rays converted the surface into mud again in the daytime. The only exceptions to this beautiful weather were several cold blustering days with snow, a few flakes floating in the air, or even a fall of a few inches upon the ground. In almost every winter storm the higher mountains are whitened with snow, while at the same time in the valleys it is more likely to be raining. The mean temperature in December at Asheville (elevation 2250 ft.) is stated to be 37° F.

My first stay was at Asheville, and my observations here were made chiefly between December 10 and 19 inclusive. Much of the country about the town is under cultivation; corn and tobacco being the principal crops of the small farms which occupy the low ground along the rivers or lie nestled in the sheltered 'coves' between the hills.

About these farms, and in the thickets that border them or fringe the streamlets which take their rise in nearly every cove, I was sure to find some birds. Prominent among them were the Snowbirds (*Junco hyemalis*) in straggling flocks of ten or twenty. With them were often to be found Field Sparrows, Grass Finches, and Song Sparrows, though in smaller numbers, and occasionally two or three White-throated Sparrows, Goldfinches, or Bluebirds were to be seen in the company. One or

two Cardinals, or a Towhee, sometimes joined their ranks, probably not because they found such society especially congenial, but rather influenced by that gregarious spirit that seems more or less to possess all birds at this season, and I fancy they did not stay long with them. Indeed, all these species often showed a disposition to separate from each other, and, bound together as they were, chiefly by community of tastes in the matter of food, the make-up of the flocks was constantly changing.

Another conspicuous bird about these farms was the Carolina Wren. In the thickets along the little streams it was to be seen dodging back and forth; often the first intimation of its presence was a bit of its song, or a vigorous scolding when its affairs went wrong in any way.

Most of the land that is not farmed is covered with hard woods, oaks predominating, though there are some large tracts of pine woods (*Pinus inops* and *P. rigida*), especially on the hills. In these hard woods Tufted Titmice were generally to be found, usually in small parties of half a dozen or so, and frequently a few Carolina Chickadees with them. White-bellied Nuthatches and an occasional Woodpecker—the Downy was far the commonest species—were the only other birds sure to be found in these woods, though various others strayed into them occasionally, the Juncos perhaps the most frequently. Indeed these were ubiquitous, for though their favorite feeding-grounds were in the deserted cornfields and other open places, yet they were often to be seen here, and in the pine woods as well. The Carolina Chickadees and Tufted Tits also frequented the pines, which were the favorite resort of the Golden-crowned Kinglets. They were often in company with the Titmice, though quite as apt to wander about by themselves in little parties of four or five, family parties perhaps, but whether they had come from northern homes to winter here, or had only retreated from the neighboring mountain tops to the shelter of the valleys, was a puzzling question, and one that arose not only in the case of the Kinglets, but in that of others also of the winter visitors. In the pine woods I one day saw two Blue Jays, and I mention it because it was the only time I saw them outside of the town. In the town they were everywhere to be heard and seen, about the houses and in the gardens, where they were the most characteristic bird, the only others to dispute their territory being a few Tufted Tits and Carolina

Chickadees in the shade trees about the houses, and an occasional Bewick's Wren in the gardens. The latter were far from abundant, almost all apparently seeking a warmer climate for the winter. A small colony of House Sparrows that had established themselves in the town a year or more ago had not yet become numerous enough to interfere with the rights of the natives.

Two species I found in the neighborhood of Asheville that are not known to occur in this region in summer. They are the Hermit Thrush and the Meadow Lark. The former I saw singly two or three times; the latter was common in suitable places in small flocks, and I saw a single bird one day in a small field in the middle of the town.

From December 20 to 24 I stayed at Patton's at the foot of the Black Mountain range, a house well known to tourists who ascend Mt. Mitchell. It is near the head of Swannanoa Creek, the north fork of the Swannanoa River, and is closely hemmed in on all sides by mountains, the lofty summits of the Black itself, and nearer Big Craggy and other outlying spurs of the main range. While I was here I did not succeed in reaching any of the high summits of the range, but I spent a couple of hours one fine morning exploring the balsam growth that covers the tops and higher flanks of the mountains. My only reward for this search was a flitting glimpse of a Junco, whether *J. hyemalis* or *J. h. carolinensis* I could not decide, and though the day and place seemed favorable for birds, this was the only feathered creature to be found in the apparently tenantless woods.

The hard woods on the slopes of the mountains and at their base were not without birds. White-bellied Nuthatches and Downy Woodpeckers were to be seen on the giant chestnuts and oaks, and once I met a couple of Pileated Woodpeckers that were making the forest resound with their cries and their noisy tapping. Carolina Chickadees in small flocks wandered through the woods, sometimes accompanied by two or three Tufted Tits and a Nuthatch or a Creeper or two, and with them often several Golden-crowned Kinglets. The only other bird of especial interest was a solitary Raven that flew, hoarsely croaking, high overhead.

About some cornfields that occupied the scanty level stretches near the creek, and clung to the steep sides of some of the lower hills, there were some Song Sparrows and a few Field Sparrows,

Goldfinches, and one or two White-throated Sparrows. But in these fields and in the hard woods bordering them, far outnumbering all the other birds, were flocks of Juncos, and to them I devoted most of my attention, for I found that the flocks contained not only *Junco hyemalis*, which was common about Asheville, but also *J. h. carolinensis*,—a bird I had searched for there in vain. The flocks seemed to consist about equally of the two races, though it was difficult to form exact estimates as to their relative numbers, for at a distance the birds are not easy to distinguish, and they were too wild for much close inspection. The *J. hyemalis* were if anything the shyer of the two; indeed they were much wilder than I have found them in New England, even at the same season. Except in this respect I noticed nothing in the habits of *J. h. carolinensis* that differed from those of our Northern Juncos.

On my return from Patton's to Asheville I spent one afternoon, December 24, at Black Mountain Station on the Western North Carolina Railroad. It is in the valley of the Swannanoa River, bordered on the south by the Blue Ridge, on the north by the outlying spurs of the Black. I found no *Junco h. carolinensis* here, though *J. hyemalis* were plenty. No particularly interesting birds were met with here except a Robin, the only one I observed in the whole region, though I heard of others being seen. From several informants I learn that a few are seen in winter in the valleys, but they are never common at this season.

December 28 I went to Balsam Gap, some thirty miles to the west of Asheville, where I remained about a week. At this point the Ducktown branch of the Western North Carolina Railroad crosses the high range of the Balsam Mountains. The elevation of the Gap itself is about thirty-four hundred feet, while a number of the neighboring summits are over six thousand feet above the sea

About the farms and in the hard woods here I found chiefly the same species as around Asheville and at Patton's. The flocks of Juncos here, as at Patton's, contained both *J. hyemalis* and *J. h. carolinensis*, the latter apparently the more numerous. I noticed nothing new as to their habits, though I spent much time watching them. Their distribution in winter as compared with that of *J. hyemalis* is worth noting. They desert the exposed summits and the higher wind-swept slopes of the mountains, and congre-

gate in the fields and open places below, but apparently never go farther from their homes than they are compelled to. I found them abundant at the base of the Balsam Mountains, and of the Black, but in the valley of the French Broad near Asheville, I did not find one, and even at Black Mountain Station, not half a dozen miles from the foot of the Black, I looked for them in vain. *Junco hyemalis*, on the other hand, was everywhere, at the foot of the higher mountains in company with its Southern cousins, and in the lower open valleys as well.

Another bird that does not apparently stray far from its native mountains is the Winter Wren. I did not meet with it at all at Asheville, but found a few at Balsam Gap. Here it seemed to find the rhododendron thickets as attractive as brush heaps or fallen trees, and but for its fondness for them, might perhaps have seemed more common. The only specimen obtained does not differ from northern ones.

A careful examination of my series of twenty-six specimens of *Junco hyemalis carolinensis* confirms the opinion I formed in the field, that this bird, recently described* by Mr. Brewster, is at least a very distinct race. Geographical considerations, however, lead us to expect that it will not prove to be specifically distinct. My specimens in the autumn plumage differ remarkably little from Mr. Brewster's series of six spring birds which he has kindly lent me for comparison. The former are slightly paler and bluer on the back and head, and the wings and tail are a dull black with a slight plumbeous tinge instead of a brownish shade as in the spring birds. My females are not so deeply colored as the males, and their backs are tinged with brown, of which color the males have little or none. Most of the females have, too, a slight brownish tinge on the flanks. These sexual differences, however, are not great, very slight indeed compared to those of *J. hyemalis*. The color of the iris, noted in twenty-five individuals, was a warm reddish brown. The color of the bill, which I noted carefully in twenty-five fresh specimens, varies slightly in a few cases. With no well marked exception, the bill was of a light bluish horn color, the tip, and a streak over each nostril, being dark brownish. These dark markings varied in extent, and there was in some cases a slight pinkish tinge near the gonys. Roughly speaking, the bill is colored much as in *J. hyemalis*,—except

* Auk, Vol. III, p. 108.

that its general tint is bluish instead of pinkish or yellow. The feet, with little variation, were grayish brown, the toes being considerably darker than the tarsus. The average measurements in centimetres, taken from the dried skins, of fifteen males are: wing, 8.00; tail, 7.05; culmen, 1.12; tarsus, 2.17; of eight females: wing, 7.52; tail, 6.67; culmen, 1.13; tarsus, 2.12.*

A trip to the top of Jones's Knob, one of the high summits of the Balsam range (elevation, 6223 feet), December 30, gave me an opportunity to spend several hours in the heavy balsam growth that covers the higher parts of this range. There were few birds here, however; a small flock of Black-capped Chickadees and a Brown Creeper were the only ones seen. Along the lower edge of the balsams Ruffed Grouse were not uncommon, some half a dozen were flushed. Their favorite resorts are the 'old fields.' These are large open spaces high up on the mountains, which, owing doubtless to their barren soil, bear only a scattered growth of bushes and low trees, and have much the look of abandoned fields. The Grouse do not confine themselves to these places, for among the balsams, even on the summit of the mountain, I found their tracks in the snow that lies unmelted in the thick shade of these dark forests. In coloring they differ little from birds from Northeastern Virginia, and are of the extreme form of *B. umbellus* farthest removed from the northern *B. u. togata*.

Some more Black-capped Chickadees were brought me two days later, shot from a flock of about twenty in the balsams. From what I can learn I do not think they ever go out of these woods. With them I received a Hairy Woodpecker (*Dryobates villosus*) also shot in the balsams, and as it happened I shot one of the southern race (*D. villosus audubonì*) the same day in the valley below, among a hard-wood growth at an elevation of about thirty-three hundred feet.

The Black-capped Chickadees, of which I have a series of thirteen, differ but slightly from the northern representatives of the species. They average a little smaller, and show slight differences in the form of the bill, but unless there may be differences in plumage not observable at this season, they do not seem to be sufficiently unlike to warrant separation, in spite of their isolated situation.

* Average of seven specimens.

I have tried to give some idea of the characteristics of the winter fauna of the mountains, of which hitherto we have known nothing. I only regret that I was not able to investigate it more thoroughly, but I hope the time is not far distant when the region will be better known, and the results of long-continued observations, at various points and at all seasons, will give definite knowledge of its birds in the place of idle conjecture.

I add a list of the birds noted during my stay. I do not include in it some species — such as the Wild Turkey, Woodcock, and several birds of prey — of whose occurrence in winter I have satisfactory evidence, but which did not happen to come under my personal observation.

1. *Merula migratoria.*
2. *Turdus aonalaschkæ pallasi.*
3. *Sialia sialis.*
4. *Regulus satrapa.*
5. *Parus atricapillus.*
6. *Parus carolinensis.*
7. *Parus bicolor.*
8. *Sitta carolinensis.*
9. *Certhia familiaris americana.*
10. *Thryothorus ludovicianus.*
11. *Thryothorus bewicki.*
12. *Troglodytes hiemalis.*
13. *Dendroica coronata.*
14. *Spinus tristis.*
15. *Poocætes gramineus.*
16. *Zonotrichia albicollis.*
17. *Spizella pusilla.*
18. *Junco hyemalis.*
19. *Junco hyemalis carolinensis.*
20. *Melospiza fasciata.*
21. *Pipilo erythrophthalmus.*
22. *Cardinalis cardinalis.*
23. *Passer domesticus.*
24. *Sturnella magna.*
25. *Cyanocitta cristata.*
26. *Corvus corax sinuatus.*
27. *Corvus americanus.*
28. *Sayornis phœbe.*
29. *Ceophlœus pileatus.*
30. *Dryobates pubescens.*
31. *Dryobates villosus.*
32. *Dryobates villosus audubonii.*
33. *Melanerpes erythrocephalus.*
34. *Colaptes auratus.*
35. *Megascops asio.*
36. *Cathartes aura.*
37. *Zenaidura macroura.*
38. *Bonasa umbellus.*
39. *Colinus virginianus.*
40. *Aix sponsa.*

LIST OF BIRDS FOUND IN ROANE COUNTY, TENNESSEE, DURING APRIL, 1884, AND MARCH AND APRIL, 1885.*

BY WILLIAM H. FOX, M. D.

Most of the following notes were taken at Rockwood, a small mining town situated at the base of the Cumberland Ridge, and six miles from the Tennessee River. The town is on the line of the Cincinnati Southern Railroad, about 70 miles northeast of Chattanooga. The elevation of the town itself is about seven hundred feet, and that of the ridge back of it about two thousand feet. The spring of 1885 was decidedly later than that of 1884, but there was no very marked difference in the time of arrival of the migratory birds. This list does not pretend to be complete, but only gives such species as were fully identified. Mr. R. Ridgway has kindly made the nomenclature to correspond with that of the unpublished 'Check-List' of the American Ornithologists' Union.†

*1. **Turdus mustelinus.**—First seen April 19, 1884, and April 21, 1885. Rather common.

2. **Turdus ustulatus swainsoni.**—Only once seen, April 26, 1885.

*3. **Turdus aonalaschkæ pallasi.**—Rather common during March and early April. Last seen April 24, 1884, and April 15, 1885. In song March 16, 1885.

*4. **Merula migratoria.**—Abundant in large flocks during March. Common until the middle of April, 1884, but scarce after first of April, 1885. The flocks keep entirely in the woods until the last of March. Building April 7, 1884.

5. **Mimus polyglottos.**—Only once seen, April 6, 1885.

*6. **Galeoscoptes carolinensis.**—First seen April 16, 1884, and April 11, 1885. Reported April 1, 1885. Very common later in the month.

*7. **Harporhynchus rufus.**—First seen April 5, 1884, and April 7, 1885. Common after those dates.

*8. **Sialia sialis.**—Very common during the first two weeks in March; after that less so. Building March 26, 1885, and April 5, 1884.

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* [The present list is one of special importance as being the *first* pertaining to the birds of Tennessee of which I have any knowledge. With the exception of the few not marked with an asterisk (prefixed to the number), the species are verified by specimens in the National Museum collection, which have been kindly presented by Dr. Fox.—R. Ridgway.]

† [This paper, it should be stated, was received before the publication of the A. U. U. Check-List, and thus, while conforming to it in nomenclature, as explained, does not follow its arrangement.—Edd.]

*9. **Polioptila cœrulea.**—Found during the whole of April, 1884. First seen April 4, 1885. Common after that date.

*10. **Regulus calendula.**—Only once seen, April 3, 1884. In 1885, first seen March 31, and common until April 22. In song April 20, 1885.

*11. **Regulus satrapa.**—Not met with in April, 1884, but rather common in 1885. Last seen April 15.

*12. **Parus bicolor.**—Fairly common both years. Building April 16, 1884.

*13. **Parus carolinensis.**—Very common both years.

*14. **Sitta carolinensis.**—Rather common. Building March 30, 1885.

*15. **Certhia familiaris americana.**—Rather common during March and early April. Last seen April 8, 1884, and April 15, 1885.

*16. **Thryothorus ludovicianus.**—Common, especially in the village.

*17. **Thryothorus bewickii.**—Only once seen; a male shot from a fence at the side of a road, April 6, 1885.

*18. **Troglodytes hiemalis.**—Single individuals seen April 3 and 5, 1884, and March 4, 21, and 27, and April 4 and 13, 1885. The last seen was on the low lands near the Tennessee River.

*19. **Anthus pensilvanicus.**—Not seen in 1884, but common in meadows during the last two weeks in March, 1885.

*20. **Mniotilta varia.**—First seen April 6, 1884; March 31, 1885. Soon became common.

*21. **Compsothlypis americana.**—First seen April 24, 1884; April 20, 1885. Not common.

*22. **Helmitherus vermivorus.**—Not common. A male taken April 24, 1884, and another April 17, 1885. Three or four were seen April 26, 1885.

23. **Dendroica æstiva.**—First seen April 17, 1884, and April 16, 1885. Rather common on the lower lands. Building April 22, 1885.

*24. **Dendroica coronata.**—Only once seen in 1884 (April 3). First seen March 27, 1885. Common near Tennessee River until last of April.

*25. **Dendroica blackburniæ.**—First seen April 16, 1884, and April 16, 1885. Several seen later. All were males.

26. **Dendroica dominica albilora.**—Only met with twice; April 18 and 22, 1884.

*27. **Dendroica virens.**—Common during April, 1884 and 1885. First seen March 31, 1885.

*28. **Dendroica vigorsii.**—Not seen during April, 1884, nor 1885. First seen March 13, 1885, and last seen March 28, 1885. My notes for latter date say "very common in song."

*29. **Dendroica discolor.**—First seen April 16, 1884, and April 15, 1885. Common.

*30. **Seiurus aurocapillus.**—Twice seen; a female taken April 15, 1884, and one seen April 26, 1885.

31. **Seiurus motacilla.**—First seen March 21, 1885; rather common after April 1, of that year. Not met with until April 12, 1884. "Singing while on the wing" April 17, 1884.

*32. **Geothlypis formosa.**—First seen April 19, 1884. Not common in 1884, and not met with in 1885.

*33. **Geothlypis trichas.**—First seen April 17, 1884, and April 22, 1885. Rather common.

*34. **Icteria virens.**—Not seen in 1884. First seen April 23, 1885. Rather common.

*35. **Sylvania mitrata.**—First seen April 16, 1884, and April 13, 1885. Quite common in 1884, but scarce in 1885.

*36. **Setophaga ruticilla.**—First seen April 16, 1884 (males); April 24, 1884 (females), and April 15, 1885 (males). Common.

*37. **Vireo olivaceus.**—First seen April 16, 1884, and April 22, 1885. Common in 1884, but rather scarce in 1885.

*38. **Vireo flavifrons.**—First seen April 24, 1884, and April 14, 1885. Very common on April 15, 1885.

*39. **Vireo solitarius.**—Not seen in 1884, and but twice observed in 1885 (April 15 and 17).

*40. **Vireo noveboracensis.**—First seen April 15, 1884, and April 6, 1885. Very common by middle of April, 1885. In song on arrival.

*41. **Lanius ludovicianus.**—Not seen in 1884. Two females taken March 18 and 20, 1885.

42. **Progne subis.**—First seen March 30, 1885. Common in the village during April of both years.

43. **Petrochelidon lunifrons.**—Once seen on April 23, 1884. Not seen in 1885.

44. **Chelidon erythrogaster.**—First seen April 17, 1884, and April 9, 1885. Not very common.

*45. **Tachycineta bicolor.**—Not common. Seen April 1, 1884, and a few during April, 1885.

*46. **Stelgidopteryx serripennis.**—First seen April 16, 1884, and April 4, 1885. This was the commonest of the Swallows, and was abundant near the river.

*47. **Piranga erythromelas.**—Two males, April 19 and 24, 1884, and two males and one female April 26, 1885.

48. **Piranga rubra.**—One male, April 24, 1884, and another in song April 19, 1885.

*49. **Carpodacus purpureus.**—Not seen in 1884. First seen March 28, 1885; "feeding on partly opened buds of the maples." Small flocks seen afterwards.

*50. **Spinus tristis.**—Common in flocks both years. Some of the males were in full spring plumage by April 9, 1885.

*51. **Poocætes gramineus.**—Not seen in 1884. Common during March, 1885, and last seen April 17, 1885.

*52. **Ammodramus sandwichensis savanna.**—Not seen in 1884. First noted March 18, 1885. Very common on low ground.

*53. **Ammodramus savannarum passerinus.**—Twice taken, a male on March 24, and a female on April 17, 1885. No others seen.

*54. **Ammodramus henslowi.**—Twice taken, a male on March 23, and a female on April 16, 1885. No others seen.

*55. **Zonotrichia albicollis.**—Common in April, 1884. In 1885, first seen March 13. Common after that date, but most so during first two weeks in April.

*56. **Spizella pusilla.**—Very abundant in flocks until the middle of April, 1884; also during March to middle of April, 1885. Found in scattered pairs during the rest of the month.

*57. **Spizella socialis.**—Abundant in large flocks during April, 1884, and April, 1885, but not common during March, 1885.

*58. **Junco hyemalis.**—Abundant during March, 1885. Scattered flocks remained until the middle of April. Last seen April 16, 1884, and April 15, 1885.

*59. **Peucæa æstivalis bachmani.**—Twice seen during 1884. Both were males and were taken on the top of the ridge April 3 and 5. In 1885 I did not meet with this species until April 14, when two were shot in an open pine grove near the base of the ridge. Five others were afterwards taken within a radius of fifty feet. They were very difficult to flush, but when once flushed they flew directly to the lower branches of the pines and were easily shot. Only a single individual was met with away from this locality.

*60. **Melospiza georgiana.**—Not seen during 1884. In 1885, first seen March 19. Very abundant in marshy fields until the first of April, then remained common.

*61. **Melospiza fasciata.**—Only once seen, April 2, 1884. Very common during March, 1885. Not seen after April 17, 1885.

*62. **Passerella iliaca.**—Not seen during 1884. Last seen March 28, 1885. Not common.

*63. **Passer domesticus.**—Not common. A few each year in the village.

*64. **Pipilo erythrophthalmus.**—Common both years.

*65. **Cardinalis cardinalis.**—Very common both years.

66. **Passerina cyanea.**—Two males seen April 24, 1885.

*67. **Molothrus ater.**—Not seen in 1884. A few April, 1885. Not common.

*68. **Agelaius phœniceus.**—Common in flocks mixed with *Quiscali*, both years.

*69. **Sturnella magna.**—Common in flocks both years.

70. **Icterus spurius.**—A male seen April 25, and a female April 26, 1885.

71. **Icterus galbula.**—First seen April 16, 1884, and April 22, 1885. Common.

*72. **Scolecophagus carolinus.**—Two taken, and another seen April 18, 1885.

*73. **Quiscalus quiscula.***—Common, especially during April, 1885.

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*[The series of Grackles collected by Dr. Fox are of extreme interest, as showing that *Q. quiscula* is the prevailing form in Eastern Tennessee—the only portion of the country west of the Alleghanies from which I have ever seen specimens. The series obtained by Dr. Fox includes nine examples of *Q. quiscula* and two of *Q. æneus*, not one of them being intermediate between these two very strongly characterized races, if not species.—R. R.]

*74. Quiscalus quiscula æneus.—Out of eleven Grackles procured but two were of this variety.

75. Corvus americanus.—Quite common.

76. Corvus corax sinuatus.—Seen April 17, 1884, and March 21, 1885.

*77. Cyanocitta cristata.—Common both years.

*78. Tyrannus tyrannus.—First seen April 17, 1884, and April 17, 1885. Common.

*79. Myiarchus crinitus.—One taken April 24, 1884, and one taken and another seen April 15, 1885.

*80. Sayornis phœbe.—Very common both years. Building April 10, 1885. Nest and five eggs found April 19, 1884.

81. Contopus virens.—A single specimen seen April 26, 1884.

82. Trochilus colubris.—First seen April 19, 1884, and April 17, 1885. Common.

83. Chætura pelagica.—First seen April 17, 1884, and April 17, 1885. Very common.

84. Antrostomus carolinensis?—An individual of this genus was seen April 15, 1885. From size and color it was thought to be of this species. None were heard either year.

85. Chordeiles virginianus.—First seen April 26, 1884. Not seen during 1885.

*86. Dryobates villosus audubonii.—A few each year.

*87. Dryobates pubescens.—Very common.

*88. Dryobates borealis.—Rare. Three seen April 10, 1884, two of which, a male and female. I succeeded in shooting. It was not met with again until April 22, 1885, when I shot a solitary male, about six miles from the place where I found the former ones.

*89. Sphyrapicus varius.—Not very common; taken both years.

*90. Ceophlœus pileatus.—Not very common; taken both years.

*91. Melanerpes carolinus.—Not seen in 1884. Rather common in 1885, most so during April.

92. Melanerpes erythrocephalus.—One adult seen March 9, 1885.

*93. Colaptes auratus.—Very common. They kept with the flocks of Robins (*Merula migratoria*) during March and early April.

94. Ceryle alcyon.—Fairly common on the larger streams.

95. Megascops asio.—Two reported shot in the village. Not seen.

96. Falco sparverius.—A few seen; not common.

97. Pandion haliaëtus carolinensis.—One seen April 22, 1884.

98. Cathartes aura.—Very common.

99. Catharista atrata.—Several small flocks seen.

*100. Zenaidura macroura.—Very common. 'Cooing' April 9, 1885.

101. Meleagris gallopavo.—Still quite common in the mountains.

102. Bonasa umbellus.—Rather common in the mountains.

103. Colinus virginianus.—Very common.

104. Ardea virescens.—First seen April 18, 1884, and April 26, 1885.

105. Nycticorax nycticorax nævius.—One April 24, 1885.

*106. Ægialitis vociferus.—Not seen in 1884. In 1885 first seen March

3, and was abundant until the first of April. A single individual, April 22, 1885.

107. **Philohela minor.**—A few during March, 1885.

*108. **Gallinago delicata.**—Not seen in 1884. First seen March 6, 1885, and last seen April 7. Abundant.

*109. **Totanus solitarius.**—A few in April, 1884, and April, 1885.

110. **Actitis macularius.**—First seen April, 17, 1884, and April 15, 1885. Not common.

111. **Fulica americana.**—One found dead. April 23, 1884.

112. **Branta canadensis.**—One flock, March 3, 1885.

113. **Anas discors.**—Common in April, 1885.

114. **Aix sponsa.**—One pair, April 4, 1885.

THE BIRDS OF WESTERN MANITOBA.

BY ERNEST E. T. SETON.

(*Concluded from p. 156.*)

130. **Trochilus colubris.** RUBY-THROATED HUMMINGBIRD.—Not observed by me in any part of the Assiniboine Valley, though given as "occasional at Qu'Appelle"; "specimens seen on Red Deer River, August 16, 1881," and tolerably common along the Red River.

131. **Milvulus forficatus.** SCISSOR-TAILED FLYCATCHER.—Accidental. One found by Mr. C. W. Nash at Portage la Prairie, October, 1884. (See Auk, April, 1885, p. 218.)

132. **Tyrannus tyrannus.** KINGBIRD.—Very abundant summer resident all over. Very common throughout the Winnipegoosis region. Arrives May 24; departs August 30.

133. **Myiarchus crinitus.** CRESTED FLYCATCHER.—Very rare summer resident about Winnipeg. Not taken in Assiniboine region, though I believe I have several times heard it near the Big Plain. Taken by Professor Macoun at Lake Manitoba, June 17, 1881.

134. **Sayornis phœbe.** PHŒBE. PEWEE.—A single pair reported from Winnipeg by Mr. Hine. Not examined by me.

135. **Contopus borealis.** OLIVE-SIDED FLYCATCHER.—Abundant summer resident at Duck Mountain, Big Plain, Portage la Prairie, Winnipeg; probably all over. Rare on Red Deer River and Porcupine Mountain.

136. **Contopus virens.** WOOD PEWEE.—Tolerably common summer resident, probably all over; noted at Pembina (*Coues*), Winnipeg, Portage la Prairie, Big Plain, and Duck Mountain.

137. **Contopus richardsonii.** WESTERN WOOD PEWEE.—Common summer resident, noted about Big Plain.

138. **Empidonax flaviventris.** YELLOW-BELLIED FLYCATCHER.—I found this species breeding in the Duck Mountain, June, 1884.

139. **Empidonax acadicus.** ACADIAN FLYCATCHER.—I found this species breeding in the Duck Mountain, June, 1884. It was tolerably common there, but has not been noted elsewhere.

140. **Empidonax pusillus traillii.** TRAILL'S FLYCATCHER.—Common at Pembina in the migration during the first week in June (*Coues*). Duck and Riding Mountains. "Lake Manitoba, June 17, 1881. Only one specimen procured." The species is doubtless much more widely diffused and common than these fragmentary observations would seem to indicate.

141. **Empidonax minimus.** LEAST FLYCATCHER.—Very abundant summer resident all over. Found at Lake Manitoba and Red Deer River; also very common at Manitoba House. Arrives May 20; departs late in September.

142. **Otocoris alpestris leucolæma.**—PALLID HORNED LARK.—Abundant all over. Resident excepting during December, January, and February. Breeds twice each season.

143. **Pica pica hudsonica.** AMERICAN MAGPIE.—Irregular, rare resident. Found west of Fort Ellice, and on the upper Assiniboine (*Macoun*). Resident in the woods about Lake Winnipeg (*Hine*). A single specimen reported from Brandon, in the centre of the Assiniboine region.

144. **Cyanocitta cristata.** BLUE JAY.—Tolerably common summer resident all over. Found at Red Deer and Swan Rivers. Arrives early in April; departs late in November (*W. G. A. Brodie*).

145. **Perisoreus canadensis.** CANADA JAY. WHISKEY-JACK. WIS-KA-TJAN.—Abundant resident all over. Abundant throughout Winnipegoosis region. The common name of this bird is a corruption of the Indian (Cree?) Wis-ka-tjan. This last name should not be lost sight of.

146. **Corvus corax sinuatus.** AMERICAN RAVEN.—Tolerably common winter resident on the Big Plain. Occasional at Qu'Appelle. Occasional along the boundary (*Coues*). Winter visitant about Winnipeg, and resident in the woods about Lake Winnipeg.

147. **Corvus americanus.** AMERICAN CROW.—Common summer resident all over. Found at Lake Winnipeg (*Bell*), Cross Lake (*Kennicott*). Arrives April 1; departs November 1.

148. **Dolichonyx oryzivorus albinucha.** BOBOLINK.—Abundant summer resident all over. Pembina specimens (*Coues*) and Carberry specimens apparently are of the white-naped variety *albinucha;* therefore I assume this to be the form throughout. Arrives May 20; departs September 7.

149. **Molothrus ater.** COWBIRD.—Very abundant summer resident all over. Arrives May 15; departs late in the fall, but disappears for a time during the moult at the end of August. They are then to be found, I believe, in the sloughs and marshes with the Grackles.

150. **Xanthocephalus xanthocephalus.** YELLOW-HEADED BLACKBIRD.—Common in Assiniboine Valley. Very abundant in Red River Valley. Summer resident. Arrives May 1; departs late in October.

151. **Agelaius phœniceus.** RED-WINGED BLACKBIRD.—Very abundant summer resident all over. Arrives April 20; departs late in October.

152. **Sturnella magna neglecta.** WESTERN MEADOW LARK.—Abundant summer resident all over. Arrives April 15; departs October 15.

153. **Icterus spurius.** ORCHARD ORIOLE.—One specimen taken at Pembina, early in June, 1873, by Dr. Coues.

154. **Icterus galbula.** BALTIMORE ORIOLE.—Abundant summer resident in Red River Valley, Big Plain, and upper Assiniboine. "Very common in woods along Lake Manitoba." Arrives May 30; departs August 30.

155. **Scolecophagus carolinus.** RUSTY BLACKBIRD.—Enormously abundant migrant all over. Breeds commonly about Big Plain and Winnipeg. Builds on the ground a nest of hair and fibres much like that of a Savanna Sparrow on a large scale, and not necessarily near the water. "Very abundant on the Swan River in September, 1881." Arrives April 15; departs November 1.

156. **Scolecophagus cyanocephalus.** BREWER'S BLACKBIRD. SATIN BIRD.—Abundant summer resident all over. Arrives April 15; builds a nest of straw and mud, on a log or in the bushes close by or in the water. Departs November 1.

157. **Quiscalus quiscula æneus.** BRONZED GRACKLE.—Abundant summer resident all over. Arrives April 20; departs October 15.

158. **Coccothraustes vespertina.** EVENING GROSBEAK.—Common winter visitant in the vicinities of Winnipeg, Portage la Prairie, and Qu'Appelle. Big Island in Lake Winnipeg and Selkirk (*R. H. Hunter*).

159. **Pinicola enucleator.** PINE GROSBEAK—Abundant winter visitant in Red River Valley, about the Big Plain, and at Qu'Appelle; probably all over. Found by Professor Macoun at Red Deer Lake, July, 1881. Probably breeding in the Winnipegoosis region.

160. **Carpodacus purpureus.** PURPLE FINCH.—Abundant summer resident in Red River Valley. Noted as common on the Big Plain in migration only, but probably breeding all over, as it is given by Dr. Coues as found "in small numbers on Turtle Mountain during the latter part of July. It doubtless breeds in this locality." It was found by Professor Macoun at Swan Lake House, July 11, 1881. Arrives early in May; departs middle of September.

161. **Loxia curvirostra minor.** AMERICAN CROSSBILL.—Common as a winter visitant at Winnipeg, Portage la Prairie, and Big Plain. Possibly breeding, as it is known to do so in Minnesota (*Trippe*).

162. **Loxia leucoptera.** WHITE-WINGED CROSSBILL.—Common winter visitant about Winnipeg and Big Plain.

163. **Acanthis hornemannii exilipes.** HOARY REDPOLL.—A tolerably common fall visitant on the Big Plain, accompanying *A. linaria*.

164. **Acanthis linaria.** REDPOLL.—Abundant fall and winter visitant along Red River, and all along the Assiniboine River.

165. **Spinus tristis.** AMERICAN GOLDFINCH. WILD CANARY.—Common summer resident in Red River Valley, and all along the Assiniboine

River. Probably all over. Arrives last week of May; departs middle of September.

166. **Spinus pinus.** PINE SISKIN.—An irregular spring and fall visitant on the Big Plain. "During June it is found along the Red River in hundreds."

167. **Plectrophenax nivalis.** SNOWFLAKE. SNOW BUNTING.—Very abundant spring, fall, and winter resident, on Big Plain, at Portage la Prairie, and along Red River; doubtless all over.

168. **Calcarius lapponicus.** LAPLAND LONGSPUR.—Very abundant spring and fall migrant on Big Plain, Souris Plain, and along Red River near Winnipeg. Arrives May 15, and again September 20.

169. **Calcarius pictus.** SMITH'S LONGSPUR. PAINTED LONGSPUR.—Abundant spring, but rare fall migrant on Big Plain and at Winnipeg. Fall migrant on Souris (*Coues*). Arrives on May 10; and again September 15.

170. **Calcarius ornatus.** CHESTNUT-COLLARED LONGSPUR.—Common summer resident all over. Local in distribution, many pairs sometimes affecting a limited area of dry prairie, while again for miles no more of the species are to be seen. Arrives May 16; departs August 30.

171. **Poocætes gramineus confinis.** WESTERN VESPER SPARROW. BAYWING. Very abundant summer resident all over. Arrives May 1; departs September 30.

172. **Ammodramus sandwichensis alaudinus.** WESTERN SAVANNA SPARROW.—Abundant summer resident all over. Red Deer River and Manitoba House. Arrives May 1; departs September 30.

173. **Ammodramus bairdii.** BAIRD'S SPARROW.—Abundant summer resident throughout the Assiniboine Valley, wherever there are alkaline flats.

174. **Ammodramus lecontei.** LECONTE'S SPARROW.—Abundant summer resident throughout the Assiniboine Valley. Arrives May 1; departs September 30. Nest found June 26, 1882. (See Auk, January, 1885, p. 24.)

175. **Chondestes grammacus.** LARK SPARROW.—Very rare summer resident. Noted only in the vicinity of Winnipeg.

176. **Zonotrichia querula.** HARRIS'S SPARROW.—Abundant spring and fall migrant on Souris, Big Plain, and along Red River. Arrives May 15; and again September 20.

177. **Zonotrichia leucophrys.** WHITE-CROWNED SPARROW.—Rare migrant on Big Plain.

178. **Zonotrichia intermedia.** INTERMEDIATE SPARROW.—Abundant on the Souris in fall migration (*Coues*).

179. **Zonotrichia albicollis.** WHITE-THROATED SPARROW.—Abundant summer resident all along the Assiniboine River from Duck Mountain to Winnipeg, also along Red River. Very common around Lake Manitoba. Arrives early in May; departs late in October.

180. **Spizella monticola.** TREE SPARROW. Abundant migrant. Noted on Souris (*Coues*), Big Plain, Portage la Prairie, and Winnipeg.

181. **Spizella socialis.** CHIPPING SPARROW.—Very rare summer resi-

dent. Noted on Big Plain, and at Portage la Prairie. Arrives in April (*W. G. A. Brodie*).

182. **Spizella pallida.** CLAY-COLORED SPARROW.—Very abundant summer resident all over. Lake Manitoba and northward. Arrives May 15; departs October 15.

183. **Spizella pusilla.** FIELD SPARROW.—Found breeding at Red River Settlement (*D. Gunn*). Observed in Red River Valley (*R. H. Hunter*).

184. **Junco hyemalis.** SLATE-COLORED JUNCO.—Abundant migrant all over. Probably breeding in the Winnipegoosis region, as it breeds in Minnesota (*Trippe*). Red Deer River.

185. **Junco hyemalis oregonus.** OREGON JUNCO.—In addition to the preceding is a form that is more nearly *oregonus* than typical *hyemalis*. It accompanies *hyemalis* in the migrations.

186. **Melospiza fasciata.** SONG SPARROW.—Summer resident all over. Not common. Found at Lake Manitoba and at Norway House. Arrives late in April; departs early in October.

187. **Melospiza lincolni.** LINCOLN'S SPARROW.—Abundant fall migrant on Souris (*Coues*). Rare migrant on Big Plain. Noted during first week of May and first week of September.

188. **Melospiza georgiana.** SWAMP SPARROW.—Common summer resident all over. Arrives early in May; departs in October.

189. **Passerella iliaca.** FOX SPARROW. Common migrant on Big Plain, at Portage la Prairie, and along Red River near Winnipeg. Breeding abundantly on Duck Mountain.

190. **Pipilo erythropthalmus.** TOWHEE.—Common summer resident on Big Plain and along Red River. "Not uncommon about Pembina" (*Coues*). Arrives May 20; departs August 30.

191. **Pipilo maculatus arcticus.** ARCTIC TOWHEE.—Found by Dr. Coues on the Souris near the Boundary.

192. **Habia ludoviciana.** ROSE-BREASTED GROSBEAK.—Tolerably common summer resident on Big Plain, and along Red River near Winnipeg. "Abundant at Pembina (*Coues*). At Lake Manitoba and Red River." Arrives late in May.

193. **Calamospiza melanocorys.** LARK BUNTING. BUFFALO BIRD.—Souris Plain, and west to Cypress Hills (*Macoun*).

194. **Piranga erythromelas.** SCARLET TANAGER.—Mr. R. H. Hunter writes me that in June, 1880, while camping east of Winnipeg, he observed a pair, evidently nesting, and adds that his companion, Mr. Clementi-Smith, has "seen several pairs on the shores of Lake Winnipeg." "Lake Winnipeg" (*Ridgway*). Rare at Qu'Appelle.

195. **Progne subis.** PURPLE MARTIN.—Tolerably common summer resident. Noted at Pembina River (*Seton*), Turtle Mountain (*Coues*), Big Plain, Portage la Prairie, and along Red River and Lake Manitoba. Arrives early in May; departs late in August.

196. **Petrochelidon lunifrons.** CLIFF SWALLOW.—Very abundant summer resident all over. Arrives May 15; departs August 30.

197. **Chelidon erythrogaster.** BARN SWALLOW.—Tolerably common summer resident. Noted on Souris River (*Coues*), on Big Plain at Portage la Prairie, and along Red River. Arrives in the first week of May.

198. **Tachycineta bicolor.** TREE SWALLOW.—Abundant summer resident. Noted at Pembina (*Coues*), Turtle Mountain, Big Plain, Riding Mountain, Portage la Prairie, and along Red River. Arrives May 5; departs August 25.

199. **Clivicola riparia.** BANK SWALLOW. SAND MARTIN.—Common summer resident all over.

200. **Ampelis garrulus.** BOHEMIAN WAX-WING.—A regular and abundant winter visitant in the vicinity of Winnipeg.

201. **Ampelis cedrorum.** CEDAR WAX-WING. CHERRY BIRD.—Abundant summer resident all over. Arrives early in June. Winnipeg River (*Kennicott*).

202. **Lanius borealis.** NORTHERN SHRIKE.—Tolerably common spring and fall visitant on the Big Plain and in the vicinity of Winnipeg. Arrives April 7 (*W. G. A. Brodie*).

203. **Lanius ludovicianus excubitoroides.** WHITE-RUMPED SHRIKE.—Abundant summer resident all over. Arrives early in May; departs late in September.

204. **Vireo olivaceus.** RED-EYED VIREO.—Abundant summer resident; noted all over excepting in the Souris region. At Lake Winnipeg abundant (*Brewer*). Very abundant about Lake Manitoba. Arrives May 24; departs late in August.

205. **Vireo philadelphicus.** PHILADELPHIA VIREO.—Found the nest and eggs near Fort Pelly (northwest of Duck Mountain), June 9, 1884. (See Auk, July, 1885, pp. 305, 306.) "Quite common" along the Red River near the Boundary (*Coues*).

206. **Vireo gilvus.** WARBLING VIREO.—Abundant summer resident all along the Red and Assiniboine Rivers. Noted also on Riding and Duck Mountains. Selkirk (*Brewer*). Arrives May 30.

207. **Vireo flavifrons.** YELLOW-THROATED VIREO.—Summer resident along Red River, and taken by Mr. R. M. Christy west of Manitoba, but not recorded from any other point.

208. **Vireo solitarius.** BLUE-HEADED VIREO.—Tolerably common summer resident. Noted at Turtle Mountain, Big Plain, Duck Mountain, and along Red River. At Pembina (*Coues*). Arrives about May 15.

209. **Mniotilta varia.** BLACK-AND-WHITE WARBLER.—Abundant summer resident. Noted at Duck Mountain, Riding Mountain, Big Plain, Portage la Prairie, and along Red River. At Pembina (*Coues*). Water Hen River.

210. **Helminthophila ruficapilla.** NASHVILLE WARBLER. Rather rare summer resident. Noted on Duck Mountain and along Red River.

211. **Helminthophila celata.** ORANGE-CROWNED WARBLER. Abundant summer resident on Big Plain and Riding Mountain, and along Red River. Abundant fall migrant on Souris (*Coues*). Arrives May 12.

212. **Helminthophila peregrina.** TENNESSEE WARBLER.—Rare sum-

mer resident. Noted on Big Plain and Duck Mountain, and along Red River near Winnipeg. At Pembina common in the spring migration (*Coues*). North shore of Lake Winnipeg (*Kennicott*).

213. **Dendroica tigrina.** CAPE MAY WARBLER. — "Plentiful" along Red River. "North to Lake Winnipeg and Moose Factory" (*Ridgway*).

214. **Dendroica æstiva.** YELLOW WARBLER. SPIDER BIRD. — Very abundant summer resident all over. "Very common in the wooded country of the N. W. Territory" (*Macoun*). Arrives May 24; departs September 7.

215. **Dendroica coronata.** MYRTLE WARBLER. — Abundant migrant. Noted on the Souris (*Coues*), on Big Plain, at Portage la Prairie, and along Red River. Lake Manitoba. Arrives May 5; departs September 12.

216. **Dendroica maculosa.** MAGNOLIA WARBLER.—On Big Plain noted only as a rare migrant. Common along Red River. "Found at Duck Bay, Lake Winnipegoosis."

217. **Dendroica pensylvanica.** CHESTNUT-SIDED WARBLER.—Abundant summer resident. On Duck and Riding Mountains, on the Big Plain, at Portage la Prairie, and along Red River. Arrives early in June.

218. **Dendroica castanea.** BAY-BREASTED WARBLER. — "Common along Red River." Not noted elsewhere.

219. **Dendroica striata.** BLACK-POLL WARBLER.—A rare migrant on the Big Plain. Abundant migrant along Red River.

220. **Dendroica blackburniæ.** BLACKBURNIAN WARBLER. — A rare migrant on the Big Plain and along Red River. Apparently breeding in the Winnipegoosis region. "Swan Lake and Porcupine Mountain."

221. **Dendroica vigorsii.** PINE WARBLER.—"Duck Bay, Lake Winnipegoosis." Breeding, I suppose.

222. **Dendroica palmarum.** PALM WARBLER.—Abundant as a migrant on Big Plain, at Portage la Prairie, and along Red River. Passes about the first week of May, and again about September 15.

223. **Seiurus aurocapillus.** OVENBIRD.—Common summer resident on Big Plain, at Portage la Prarie, and along Red River. "Abundant around Lake Manitoba." Arrives late in May.

224. **Seiurus noveboracensis.** WATER-THRUSH. — Common summer resident on Big Plain and along Red River. Around Lakes of the N. W. Territory (*Macoun*).

225. **Geothlypis agilis.** CONNECTICUT WARBLER.—Tolerably common summer resident. Noted on Duck Mountain, Big Plain, and along Red River. Nest found June 21, 1883. (See Auk, April, 1884, pp. 192, 193.)

226. **Geothlypis philadelphia.** MOURNING WARBLER—Common summer resident on Big Plain and in Red River Valley. "Very abundant at Water Hen River and Swan Lake."

227. **Geothlypis trichas occidentalis.** WESTERN MARYLAND YELLOW-THROAT.—Abundant summer resident all over. "At Water Hen River."

228. **Sylvania pusilla.** WILSON'S WARBLER.—Observed in May on the Turtle Mountain. Rather common along Red River.

229. **Sylvania canadensis.** CANADIAN WARBLER.—Doubtless breed-

ing; though noted as a rare migrant only on the Big Plain. Common along Red River. "At the head of Lake Winnipegoosis." Winnipeg River in June (*Kennicott*).

230. **Setophaga ruticilla.** AMERICAN REDSTART.—Common summer resident all over. "Very abundant around Lake Manitoba, Winnipeg River (*Kennicott*)." Arrives early in May.

231. **Anthus pensilvanicus.** AMERICAN PIPIT.—Abundant spring and fall migrant on Big Plain, at Portage la Prairie, on the Souris (*Coues*), and along Red River.

232. **Anthus spragueii.** SPRAGUE'S PIPIT. MISSOURI SKYLARK.—Abundant summer resident of Assiniboine region only. Arrives May 1; departs September 1.

233. **Galeoscoptes carolinensis.** CATBIRD.—Abundant summer resident all over. Lake Winnipeg (*Brewer*). Arrives May 20; departs early in September.

234. **Harporhynchus rufus.** BROWN THRASHER.—Common summer resident throughout Red River Valley, on the Big Plain, and Riding Mountain. At Swan River. Arrives May 20; departs September 7.

235. **Troglodytes aëdon parkmanii.** WESTERN HOUSE WREN.—Abundant summer resident all over. Arrives May 20; departs about the end of September.

236. **Troglodytes hiemalis.** WINTER WREN.—Mr. R. H. Hunter writes me that this species is a common summer resident east of Winnipeg.

237. **Cistothorus stellaris.** SHORT-BILLED MARSH WREN.—Abundant summer resident all over. Near Fort Pelly (*Seton*). At Water Hen River. Arrives May 15; departs September 15.

238. **Cistothorus palustris.** LONG-BILLED MARSH WREN. Rare summer resident. Noted at Winnipeg, and at Water Hen River. Not found yet in Assiniboine region. Apparently of extensive though erratic distribution, as it was found by Richardson on the Saskatchewan.

239. **Certhia familiaris americana.** BROWN CREEPER.—Red River settlement (*Ridgway*).

240. **Sitta carolinensis aculeata.** SLENDER-BILLED NUTHATCH.—Rather rare summer resident. Noted on Big Plain (*W. G. A. Brodie*), at Portage la Prairie, and along Red River. Latest noted October 27, 1884.

241. **Sitta canadensis.** RED-BREASTED NUTHATCH.—Very rare summer resident. Once seen on Big Plain; once taken near Winnipeg by Mr. Hine. Occurs at Lake Winnipeg (*Ridgway*).

242. **Parus atricapillus septentrionalis.** LONG-TAILED CHICKADEE.—Resident; abundant all over. Very common in Northwest Territory (*Macoun*). Lake Winnipeg (*Kennicott*), Winnipeg River (*B. Ross*). The Manitoba bird is not strictly *septentrionalis*, but is nearer to that form than to *atricapillus*.

243. **Parus hudsonicus.** HUDSONIAN CHICKADEE.—The only record is as follows: "In flocks around the Porcupine Mountains" (*Macoun*). The bird is certainly not found in the Assiniboine region, and there are no Red River records, though it should be the prevailing species in the Winnipeg Basin.

244. **Regulus satrapa.** GOLDEN-CROWNED KINGLET.—Rare migrant. Noted only at Carberry, November 5, 1884.

245. **Regulus calendula.** RUBY-CROWNED KINGLET.—Tolerably common migrant. Noted on Big Plain about May 15; on Souris in September (*Coues*). Along Red River and at Portage la Prairie.

246. **Turdus fuscescens.** WILSON'S THRUSH. VEERY.—Abundant summer resident all over. "Lake Manitoba and westward; abundant." Arrives May 24; departs late in August.

246 *a*. **Turdus fuscescens salicicolus.** WILLOW THRUSH.—Taken on the Souris at the Boundary, in the fall migration, September 16, by Dr. Coues. Recorded as *Turdus swainsoni*.

247. **Turdus aliciæ.** GRAY-CHEEKED THRUSH.—Common migrant on the Big Plain. Imperfectly observed, as it is not distinguished by ordinary observers.

248. **Turdus ustulatus swainsoni.** OLIVE-BACKED THRUSH.—Tolerably common summer resident. Noted on Turtle Mountain, Duck Mountain, and Big Plain. Found along Red River at Portage la Prairie. Swan River, and north to Carleton House. Arrives May 12.

249. **Turdus aonalaschkæ pallasii.** HERMIT THRUSH.—Common summer resident. Noted at Turtle Mountain, Big Plain, Portage la Prairie, and along the Red River. "Lake Manitoba and west to Fort Pelly." Arrives May 1.

250. **Merula migratoria.** AMERICAN ROBIN.—Abundant summer resident all over, throughout the Winnipegoosis region, Norway House. Arrives April 15; departs October 15 (*W. G. A. Brodie*).

251. **Sialia sialis.** BLUEBIRD.—Rare summer resident. Most common in the region about Winnipeg. Lake Winnipeg (*Ridgway*). At Portage la Prairie a few pairs are seen each summer (*Nash*). Not noted west of this point.

The following species are added on the authority of Mr. R. H. Hunter of Ottawa. The list was received too late for insertion in due order.

252. **Anas cyanoptera.** CINNAMON TEAL.—"I have taken the Cinnamon Teal at Oak Lake, and I think also at Lake Manitoba, but during fifteen years' residence in Manitoba I have seen only five or six specimens."

253. **Glaucionetta islandica.** BARROW'S GOLDEN-EYE.—"I shot a brace at Lake Manitoba in 1879, and a drake at Shoal Lake in the spring of the following year. And I saw a drake which was killed at the mouth of the Red River."

254. **Recurvirostra americana.** AMERICAN AVOCET.—"Have killed the bird along the Souris, southwest of Plum Creek." In the Museum of the Geological survey at Ottawa is "a specimen of the Avocet, marked 'from Manitoba.'"

255. **Buteo lineatus.** RED-SHOULDERED HAWK.—"Rather common in the eastern part of the Province."

256. **Elanoides forficatus.** SWALLOW-TAILED KITE.—"Noticed at Selkirk, Pembina Mountain, and Fort Qu'Appelle."

257. Picoides americanus. AMERICAN THREE-TOED WOODPECKER.—"I have taken the bird on the Broken-head River; also on the Winnipeg."

I have also received much assistance and corroborative evidence from the notes of my late friend Wm. G. A. Brodie, who was drowned while pursuing his studies on the upper Assiniboine in 1883. Also from the observations of my friend Mr. R. M. Christy, whose field notes have already appeared in the 'Zoologist.'

ADDENDA.—Professor Bell writes me that Long Lake and Pic River, mentioned under No. 89, *Pediocætes*, are near Lake Superior, not Lake Winnipeg; and adds that the species "used to be quite common at Thunder Bay. . . . I understand from the Hudson's Bay Company's officers that this bird comes almost or quite to the Bay all along the southwest side." In this latter case the bird will probably be the true *Pediocætes phasianellus*.

Mr. C. W. Nash writes, from Portage la Prairie, as follows: "I never shot but one Ruddy Duck (*Erismatura rubida*) here, and that was on September 10, 1884. I never found it breeding at Shoal Lake." [For '*Nash*' on fourth line of number 38, read '*Hine*.'—E. E. T. S.]

Willow Ptarmigan (*Lagopus lagopus*). "This bird is a very common winter visitor to the shores of Lake Manitoba, even to the southern end, from whence I have received many specimens each year, generally in January and February."

Prairie Hen or Pinnated Grouse (*Tympanuchus americanus*). "The first I heard of was shot here in 1883; since then they have gradually increased and are now quite common."

Mourning Dove (*Zenaidura macroura*). "Very common here; breeds in low bushes, frequently selecting the wild plum."

Bald Eagle (*Haliætus leucocephalus*). "Reported to be frequently seen on Lake Manitoba.'"

Osprey (*Pandion haliætus carolinensis*). "I saw one last spring, over the Assiniboine River."

Mr. R. H. Hunter sends the following comments on the first part of this list:—

"I have seen the Wood Duck (*Aix sponsa*) at Westbourne, and it is always to be found along Cook's Creek, east of Winnipeg.

"I cannot concur that the Big Blue-bill (*Aythya marila nearctica*) commonly breeds in Manitoba.

"I have taken the Brant (*Branta bernicla*) at Shoal Lake.

"I have never seen the Knot (*Tringa canutus*) along Red River, but have seen large flocks of the species west of Brandon.

"The Prairie Hen (*Tympanuchus americanus*) has since appeared at Westbourne.

"The Long-eared Owl (*Asio wilsonianus*), the Short-eared Owl (*Asio accipitrinus*), and the Barred Owl (*Syrnium nebulosum*) have all been seen in the wooded country east of Winnipeg, during February.

"I am positive that the Hawk Owl (*Surnia ulula caparoch*) is a permanent resident and breeds in the wooded country east of the Red River."

ON THE GLAUCOUS GULL OF BERING'S SEA AND CONTIGUOUS WATERS.

BY ROBERT RIDGWAY.

THE National Museum having accumulated a considerable series of specimens of *Larus glaucus* from various North Atlantic localities, and also an equal number of what appeared to be the same species from the shores of Alaska and adjacent waters, certain very obvious differences between specimens from the two regions attracted attention, and eventually led to a careful comparison. The result is that the so-called *L. glaucus* from Alaska, etc., proves to be a quite distinct and easily recognized species, which seems to have been hitherto unnamed. I therefore propose to name and characterize it as follows:—

Larus barrovianus, sp. nov.

SP. CHAR.—In plumage resembling *L. glaucus* and *L. leucopterus*, and in size intermediate between these two species; very different from the former, however, in shape of the bill, which has the depth through the angle never less, and usually decidedly greater, than through the base, instead of exactly the reverse; mantle averaging somewhat darker than in *glaucus*, with an obvious or tolerably abrupt line of demarkation between the white tips to the primaries and the pearl-blue of their basal portion.

Males (four specimens): Wing, 17.00-18.00 (average, 17.44); tail, 7.30-7.50 (7.45); culmen, 2.00-2.30 (2.19); depth of bill through angle, .80-.85 (.82); through base, .75-.80 (.79); tarsus, 2.55-2.78 (2.64); middle toe (with claw), 2.53-2.75 (2.64).

Females (four specimens): Wing, 16.25-17.25 (16.81); tail, 7.00-7.20 (7.11); culmen, 1.88-2.05 (1.98); depth of bill through angle, .72-.80 (.75); through base, .70-.75 (.72); tarsus, 2.40-2.50 (2.45); middle toe (with claw), 2.35-2.50 (2.42).

HABITAT. Bering's Sea and contiguous waters, northeastward to Point Barrow, southwestward to Japan (in winter). (Type, No. 88,913, U. S. Nat. Mus., ♂ ad., Point Barrow, Alaska, August 4, 1882; Middleton Smith, collector.)

The specimens measured above are all adults, and are from the two localities of St. Michaels and Point Barrow. An equal number of adults of *L. glaucus* (only two examples having the sex determined, however), measure as follows:

Males (presumed, or ascertained; six specimens): Wing, 17.60-18.75 (18.20); tail, 7.70-8.50 (8.12); culmen, 2.42-2.70 (2.56); depth of bill at angle, .86-.95 (.91), at base, .90-1.00 (.95); tarsus, 2.60-3.05 (2.91); middle toe (with claw) 2.75-3.00 (2.89).

Females (presumed and ascertained; two specimens): Wing, 16.75-18.00 (17.37); tail, 7.40-8.40 (7.90); culmen, 2.30-2.35 (2.32); depth of bill through angle, .80; at base, .83-.88 (.85); tarsus, 2.60-2.72 (2.66); middle toe (with claw) 2.68-2.75 (2.71).

There is apparently no difference in plumage between the two species in the immature plumages, of which the National Museum collection possesses a good series in all stages; but they may be very readily distinguished by the size and shape of the bill, as pointed out above.

DESCRIPTION OF A NEW SPECIES OF OYSTER-CATCHER FROM THE GALAPAGOS ISLANDS.

BY ROBERT RIDGWAY.

Hæmatopus galapagensis, sp. nov.

SP. CHAR.—Somewhat similar to *H. palliatus* Temm., but differing as follows: Back, scapulars, and wings sooty black (as in *H. leucopus* Garn.), instead of grayish brown; shorter upper tail-coverts entirely black, and the longer ones barred or spotted with black at ends; under primary-coverts chiefly black; white of greater wing-coverts and secondaries much more restricted. Wing, 10.00; tail, 3.80-3.90; culmen, 3.12-3.42; depth of bill at thickest portion anterior to nostril, .50; tarsus, 2.12-2.20; middle toe, 1.65. (Type, No. 101,319, U. S. Nat. Mus.)

HABITAT. Chatham Island, Galapagos. (Three specimens, collected by Dr. Wm. H. Jones, U. S. N., Surgeon U. S. S. 'Wachusett.')

PRELIMINARY DESCRIPTIONS OF SOME NEW SPECIES OF BIRDS FROM SOUTHERN MEXICO, IN THE COLLECTION OF THE MEXICAN GEOGRAPHICAL AND EXPLORING COMMISSION.

BY ROBERT RIDGWAY.

PUBLICATION of the annotated catalogue* of the beautiful and unique collection of birds made by the naturalists of the Mexican

*To be published in Vol IX, 'Proceedings' of the U.S. National Museum, with full descriptions and appropriate critical remarks. The author is indebted to the Director of the National Museum, for his kind permission to publish in advance these condensed diagnoses.

Geographical and Exploring Commission (Mr. Augustin Diaz, C. E., Director), having been unavoidably delayed, and there being no present prospect of its early appearance, the following brief diagnoses of the new species described therein are herewith presented. For the privilege of describing and naming these interesting new species, I am indebted to the courtesy of Mr. Fernando Ferrari-Perez, C. E., Chief of the Natural History Section of the Commission.

The type-specimens are all in the collection made by the Commission, and now in the National Museum of Mexico.

1. **Amphispiza ferrariperezi**, sp. nov.

SP. CHAR.—Similar to *A. quinquestriata* (Scl.), but rump brown instead of slate-gray, lesser wing-coverts cinnamon-rufous instead of slate-color, throat with a broad patch instead of stripe of white, black of breast forming a broad collar widest laterally, and sides light brown instead of plumbeous. *Male:* Wing, 2.70; tail, 3.30; culmen, .50; tarsus, .85; middle toe, .60. *Female:* Wing, 2.50, tail, 3.00.

HABITAT. Chietla, State of Puebla, Mexico.

2. **Pipilo submaculatus**, sp. nov.

SP. CHAR.—Resembling *P. maculatus* Swains., but the back without white streaks, the white terminal spots of middle and greater wing-coverts and lateral rectrices much reduced in size, and the rufous of the sides of the breast marked with sagittate spots of black. Wing (adult male), 3.30; tail, 3.70; culmen, .60; tarsus, 1.15; middle toe, .75.

HABITAT. Tezuitlan, State of Puebla.

3. **Pipilo complexus**, sp. nov.

SP. CHAR.—Similar to *P. macronyx* Swains., but decidedly smaller, the sides much paler rufous (almost buff), the throat with a white patch, and the occiput with a rufous patch. Wing (adult male), 3.60; tail, 3.90; culmen, .62; tarsus, 1.15; middle toe, .70.

HABITAT. Tezuitlan, State of Puebla.

4. **Anas diazi**, sp. nov.

SP. CHAR.—Most like *A. fulvigula*, nobis, but last row of wing-coverts with a distinct subterminal band of white, and secondaries with a broad terminal bar of the same; general color much less fulvous; cheeks streaked with dusky, and lower basal angle of upper mandible without black spot. *Male:* Wing, 10.00; tail, 4.00; culmen, 2.05; width of bill near end, .90; tarsus, 1.60; middle toe 1.95. *Female (immature):* Wing, 8.90; tail, 3.80; culmen, 1.85; width of bill near end, .75.

HABITAT. Laguna del Rosario, Tlaxcala, and San Ysidro, Puebla.

5. **Philortyx personatus**, sp. nov.

SP. CHAR.—Differing from *P. fasciatus* Gould, in having the forehead, cheeks, and throat uniform black, instead of having these parts brown and white, respectively; bill light brown, instead of black (possibly darker in fully adult). Wing, 3.80; tail, 2.00; culmen, .42; tarsus, 1.00; middle toe, .92.

HABITAT. Chietla, State of Puebla.

DESCRIPTIONS OF TWO NEW SPECIES OF BIRDS SUPPOSED TO BE FROM THE INTERIOR OF VENEZUELA.

BY ROBERT RIDGWAY.

1. **Pyroderus masoni**, sp. nov.

SP. CHAR.—Most like *P. orenocensis* Lafr., but plumage much darker beneath, the throat and jugulum nearly uniform dark brownish red, the breast and abdomen dark brownish chestnut. (Type, No. 106,051, U. S. Nat. Mus.)

Dedicated to Professor Otis T. Mason, Curator of the Department of Ethnology, United States National Museum.

2. **Aulacorhamphus dimidiatus**, sp. nov.

SP. CHAR.—Similar to *A. atrogularis* (Sturm.), but with the bill very much shorter (culmen, 2.20-2.25), the gonys very little longer than the ramus of the lower mandible, instead of nearly twice as long, and the black stripe along edge of upper mandible much broader. (Type, No. 106,052, U. S. Nat. Mus.)

DESCRIPTION OF A NEW SPECIES OF ELF OWL FROM SOCORRO ISLAND, WESTERN MEXICO.

BY ROBERT RIDGWAY.

Micrathene graysoni, sp. nov.

SP. CHAR.—Similar to *M. whitneyi* (Cooper), but much browner, the plumage entirely without any superficial gray, and the light rusty tail-

bands nearly as broad as the brown interspaces. *Male:* Wing, 4.25; tail, 2.20; culmen, .35; tarsus, .75. *Female:* Wing, 4.05; tail, 1.90; culmen, .35; tarsus, .70. (Types, Nos. 49,678. "♂," and 50,765, "♀," U. S. Nat. Mus., Socorro I.; Col. A. J. Grayson, collector.)

DESCRIPTION OF A NEW GENUS OF OCEANITIDÆ.

BY ROBERT RIDGWAY.

Pealea, gen. nov.

CHAR.—Similar to *Oceanites* Keys. & Blas., but claws very broad, flat, and blunt (as in *Pelagodroma* Reich.), the tarsus exceeding the middle toe with claw by the length of the culmen (to nasal tube), and the first quill equal to or longer than the third.

Type, *Thalassidroma lineata* Peale.

The type-species is colored above much like *Oceanites oceanicus*, but very differently beneath, the belly and flanks being white marked with wedge-shaped stripes of dusky. Some of the under wing-coverts are likewise white, as is also the basal portion of the rectrices. The webs of the feet are wholly dusky. The tarsi are booted, as in *Oceanites*.

The genus is named in honor of Mr. Titian R. Peale, the very accomplished naturalist of the United States Exploring Expedition under Commodore Wilkes.

DESCRIPTION OF FOUR NEW SPECIES OF BIRDS FROM THE BAHAMA ISLANDS.*

BY ROBERT RIDGWAY.

1. **Geothlypis coryi**, sp. nov.

SP. CHAR.—In plumage much resembling *G. beldingi*, nobis (from Lower California), but yellow of lower parts with less of an orange tint, the sides and upper parts without any olive-brown tinge, the flanks bright greenish yellow, and the yellow posterior border to the black 'mask' much narrower, and less purely yellow. Form very different, the bill about twice as large, and of different shape. *Female* very different from that of any other known species, being bright olive-green above and entirely pure

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gamboge-yellow below; with ashy auriculars and yellowish forehead and superciliary stripe.

Adult male (type No. 107,876, U. S. Nat. Mus., Eleuthera I., Bahamas, March 12, 1886; Chas. H. Townsend): Above bright olive-green, very slightly tinged with ashy on top of head; lower parts, including flanks, entirely rich gamboge-yellow; forehead (back to about .35 from nostril), lores, orbital region, malar region, and auriculars, uniform deep black, bordered posteriorly by gamboge-yellow (less distinct across crown); bill blackish, paler along tomia, and at base of lower mandible; legs and feet light brown; wing, 2.60; tail, 2.50; culmen, .75; bill from nostril, 45; depth of bill at base, .20; width, .20: tarsus, 90.

Adult female (No. 107,875, U. S. Nat. Mus., same locality and date; J. E. Benedict): Similar to the male, except in color of the head, which lacks entirely any black, the forehead, cheeks, and superciliary region being olive-yellowish, lores grayish, and auriculars ashy; flanks and under tail-coverts rather paler and more olivaceous-yellow than in the male. Wing, 2.45; tail, 2.50; culmen, .75; bill from nostril, .45, depth at base, .20, width, .18; tarsus, .87.

This species is much more strongly marked than *G. rostratus* Bryant (from New Providence), from which it differs in many very pronounced characters. The color bordering the hinder edge of the black 'mask' is not light ashy, as in that species, but gamboge-yellow, as in *G. beldingi*, nobis (from Lower California). The yellow of the lower parts is much more intense, being, even on the flanks (which are pale grayish-yellow in *rostratus*), as bright as on the breast in *rostratus*. The lower mandible (in both sexes) is blackish, instead of pale brownish, and the bill has a very different shape, being much more curved, more compressed terminally, and the culmen forming an elevated, almost knife-like ridge, as in *Helinaia swainsoni*. The female is many shades richer in coloration than that of *G. rostratus*, which in plumage resembles rather closely the same sex of *G. trichas occidentalis* Brewst.

Two adult males and one adult female in the collection.

I take pleasure in naming this fine new species after Mr. Charles B. Cory, author of 'Birds of the Bahama Islands,' and other well-known ornithological works.

2. Geothlypis tanneri, sp. nov.

SP. CHAR.—Similar to *G. coryi*, but bill more robust and straighter, black of forehead more extended, yellow posterior border to 'mask' paler and changing to yellowish-gray across crown, olive-green of upper parts much duller, and yellow of lower parts less intense.

Adult male (type No. 108,492, U. S. Nat. Mus., Abaco I., Bahamas, Apr. 3, 1886: Charles H. Townsend): Wing, 2.65; tail, 2.50; culmen, .75; bill from nostril, .43; depth at base, .22; width, .22; tarsus, .88. *Adult female* (No. 108,496, same locality and date; Willard Nye): In plumage, nearly intermediate between the same sex of *G. rostratus* and *G. coryi*, having more, and brighter, yellow on lower parts than the former, and less than the latter; head, however, more as in *G. rostratus*, the distinct yellow superciliary stripe of *coryi* being absent, and the fore part of crown tinged with reddish brown. Wing, 2.35; tail, 2.50; culmen, .70; bill from nostril, .42; depth at base, .22; width, .22; tarsus, .85.

Three adult males and one female.

This new species is dedicated to Captain Z. L. Tanner, commander of the 'Albatross,' to whom the naturalists accompanying the expedition are indebted for facilities kindly extended to them in the prosecution of their work.

3. Centurus nyeanus, sp. nov.

SP. CHAR.—Similar to *C. superciliaris* (Temm.) of Cuba, but much smaller, the white bars of upper parts and gray of lower parts almost entirely devoid of yellow tinge, red of belly and black superciliary spot more restricted, and outer webs of middle tail-feathers without spots.

Adult male (type No. 107,996, U. S. Nat. Mus., Wattling's I., Bahamas, March 5, 1886; Willard Nye): Frontlet bright scarlet, paler anteriorly and along lower edge; forehead (for about .30 of an inch back from base of culmen), lores, suborbital region, and auriculars white, the latter with a faint buffy-grayish tinge; crown, occiput and hind-neck bright crimson-scarlet, lighter posteriorly; back, scapulars, and rump barred with black and dull white, the two colors in about equal amount, the bars of each averaging about .08 of an inch in width; wing-coverts more broadly barred, with black and pure white; alulæ and primary coverts uniform black, the exterior feather of the former with some white along edge; primaries black, irregularly spotted with white toward base, and more or less broadly tipped with white; upper tail-coverts white, rather distantly and irregularly barred with black; tail black, the inner webs of intermediæ marked with oblique quadrate spots of white, the outer webs with an irregularly wedge-shaped streak of white on basal half (chiefly concealed by coverts), exterior pair barred or tranversely spotted with white on terminal portion. Chin and upper part of throat grayish buffy-white, gradually deepening into light buffy-grayish on lower throat; fore-neck, sides of neck, and chest deeper grayish, this color assuming decidedly more of a buffy tinge on the breast, upper part of belly, and on flanks; central lower part of belly dull scarlet, the adjacent portions, including lower tail-coverts, dingy white, marked with V-shaped bars of blackish. Bill entirely black; feet dusky. Wing, 5.20; tail, 4.00; culmen, 1.50; tarsus, .92.

This handsome new species is dedicated to Mr. Willard Nye, collector of the unique type.

4. **Centurus blakei**, sp. nov.

SP. CHAR.—Similar to *C. nyeanus* but much darker, the forehead pale drab, or light grayish-buff (instead of pure white); auriculars deep light drab, fore-neck and chest olivaceous-drab, and lighter bars of back, scapulars and rump, light dingy buff instead of nearly pure white; frontlet dull orange-red (instead of pure vermillion, or scarlet).

Adult male (type No. 108,618, Abaco I., Bahamas, April 2, 1886; Charles H. Townsend): Wing, 5.35; tail, 3.90; culmen, 1.45; tarsus, .90.

Adult female (type No. 198,619, same locality, April 6, 1886; Willard Nye): Similar to the male, but crown and occiput ash-gray, becoming gradually lighter anteriorly, the hinder portion (connecting superciliary spots) spotted with black; frontlet merely tinged with orange, and grayish of lower parts, as well as white bars of back, etc., much less strongly tinged with yellowish. Wing, 5.25; tail, 3.80; culmen, 1.35; tarsus, .85.

Eleven adult males, six adult females.

This new species is dedicated to his Excellency, Governor Henry A. Blake, to whom the naturalists accompanying the 'Albatross' are indebted for many courtesies and kind attentions.

THE BIRDS OF THE WEST INDIES, INCLUDING THE BAHAMA ISLANDS, THE GREATER AND THE LESSER ANTILLES, EXCEPTING THE ISLANDS OF TOBAGO AND TRINIDAD.

BY CHARLES B. CORY.

[*Continued from p. 245.*]

FAMILY COTINGIDÆ.

GENUS **Hadrostomus** CAB.

Hadrostomus CABANIS, Mus. Hein. II, p. 85 (1859).

Hadrostomus niger (GMEL.).

Lanius niger GMEL. Syst. Nat. I, p. 301 (1788).

Tityra leuconotus GRAY, Gen. Bds. I. pl. 63 (1844).—GOSSE, Bds. Jam. p. 187 (1847).

Pachyrhynchus atterrimus LAFR. Rev. Zool. 1846, p. 320.

Pachyrhamphus nigrescens CAB. Orn. Not. I, p. 241.—BP. Consp. I, p 180 (1850).

Pachyrhamphus niger SCL. P. Z. S. 1857, p. 72.

Platypsaris nigra SCL. P. Z. S. 1861, p. 77.—ALBRECHT, J. f. O. 1862, p. 207.

Hadrostomus niger CAB. & HEINE, Mus. Hein. II, p. 85 (1859). — SCL. Cat. Am. Bds. p. 239 (1862).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 290.—SCL. & SALV. Nom. Avium Neotr. p. 56 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 108 (1881).—CORY, List Bds. W. I. p. 16 (1885).

SP. CHAR. *Male:*—Top of the head black, shading into dark brown, with a blackish gloss on the back; throat, breast and belly smoke-color; a faint tinge of rufous on the flanks; wings and tail dark brown, almost black; tertials and some of the wing-coverts heavily marked with white, forming a partially concealed white patch at the junction of the wing and back.

Female:—Top of the head dark brown; a malar stripe of light brown; throat brownish white, rest of underparts dull white; crissum brownish olive; back and rump dark slate-color; wings and tail brown, pale rufous on the inner webs of the primaries; outer webs of secondaries, and some of the inner primaries, showing dull rufous brown.

Length (skin), 7.20; wing, 4; tail, 3.50; tarsus, .85; bill, .55.

HABITAT. Jamaica.

FAMILY CAPRIMULGIDÆ.

GENUS **Nyctibius** VIEILL.

Nyctibius VIEILLOT, Analyse, p. 38 (1806).

Nyctibius jamaicensis (GMEL.).

Caprimulgus jamaicensis GMEL. Syst. Nat. I, p. 1029 (1788).—DENNY, P. Z. S. 1847, p. 38.

Nyctibius jamaicensis GOSSE, Bds. Jam. p. 41 (1847).—BP. Consp. I, p. 58 (1850).—SCL. P. Z. S. 1861, p. 77; *ib.* Cat. Am. Bds. p. 278 (1862).—ALBRECHT, J. f. O. 1862, p. 199.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 286.—GRAY, Handl. Bds. I, p. 56 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 95 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 108 (1881).—CORY, List Bds. W. I. p. 16 (1885).

SP. CHAR. *Male:*—General plumage grayish, heavily marked, streaked, and blotched with brown and white; some of the feathers sparsely

tinged with pale rufous on the back, wing-coverts, and underparts; throat dull white, the shafts of the feathers brown, giving the throat the appearance of being streaked with narrow lines of brown; these lines are broader on the shafts of the feathers on the belly, many of the feathers being tipped with brown, and showing the pale rufous edging before mentioned; wings and tail brown, imperfectly banded with pale markings; upper surface of tail showing imperfect white bands; under surface of tail thickly mottled with dull white; under surface of wings brown, with white dots.

Length (skin), 16; wing, 12; tail, 8.50; culmen, 1.

Habitat. Jamaica.

Nyctibius pallidus Gosse.

Nyctibius pallidus Gosse, Bds. Jam. p. 49 (1847).—Bp. Consp. I. p. 58 (1850).—Albrecht, J. f. O, 1862, p. 199.—March, Pr. Acad. Nat. Sci. Phila. 1863, p. 286.—Scl. P. Z. S. 1866, p. 129 (?).—Gray, Handl. Bds. I, p. 56 (1869).—A. & E. Newton, Handb. Jamaica, p. 108 (1881).—Cory, List Bds. W. I. p. 16 (1885).

"Length 11 inches, expanse 22, rictus $1\frac{5}{8}$, beak from feathers to tip $\frac{5}{8}$, flexture, 6, tail $3\frac{3}{4}$.

"The nostrils prominent, tubulated, and covered with a membrane; from the nostrils runs a deep groove or furrow towards the tip. The beak was bent like the end of an Owl's, and when closed was longer than the under mandible; the latter was of a subulated form, shorter and bending in a contrary direction to the upper one: it was broader than the upper; its margins were inverted, and received the upper one exactly, when closed. There were no bristles on the angle of the mouth. The tibiæ (tarsi?) or shank-bones are shortened into a heel, so that the measure of what is usually called the leg, from the bend of the knee to the first joint of the middle toe, is only 2-8 of an inch. The length of that part which ought to be called the leg, (tibia?) is $1\frac{1}{2}$ inch, and the bone of the thigh 1 inch. Toes four, three before, one behind; covered with ash-coloured scales, very flat beneath, and all connected by narrow membrane. Claws brown, strong, gently curved, and compressed; middle claw thinned to an edge on the inner side, but not serrate. Tail of ten feathers, equal, broad, rounded, barred with blackish and grey, and these bars again marked with less black bars. Wing quills coloured chiefly like the tail, but deeper; secondaries edged with clay-colour; winglet and long coverts immediately beneath it, black, with a few whitish bars; greater coverts black, edged with clay-colour; the next row of coverts whitish, with black shafts; the next row black, making a large triangular black spot in the expanded wing. Eyes very large, irides bright yellow. Head, neck, and throat, white, with black shafts; above each eye some black and white streaked feathers in an erect position, forming two small

roundish rings. On the breast, clay-coloured feathers with black shafts and black spots. Sides, belly, and vent, white with black shafts. A line of black feathers down the middle of the back; rump ashy, with narrow black shafts. On shoulders a mixture of ash and clay-colour, with black shafts. Plumage very loose. Weight, 3 oz., 7 sc." (GOSSE, from Robinson's MSS., Bds. Jam. pp. 49, 50. 1847.)

HABITAT. Jamaica.

This is a very doubtful species, not generally recognized by authors. Probably the same as *N. jamaicensis.*

GENUS **Chordeiles** SWAINS.

Chordeiles SWAINSON, Fauna Bor. Amer. II, p. 496 (1831).

Chordeiles minor CAB.

Chordeiles minor CAB. J. f. O. 1856, p. 5.—SCL. Cat. Am. Bds. p. 279 (1862).—ALBRECHT, J. f. O. 1862, p. 199.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 286.—SCL. & SALV. Nom. Avium Neotr. p. 96 (1873).—GUNDL. J. f. O. 1874, p. 117; *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 202 (1878).—A. & E. NEWTON, Handb. Jamaica, p. 109 (1881).—CORY, Bds. Bahama I. p. 106 (1880); *ib.* Bds. Haiti & San Domingo, p. 85 (1885); *ib.* List Bds. W. I. p. 16 (1885).

Chordeiles gundlachii LAWR. Ann. Lyc. N. Y. VI, p. 165 (1856).

Chordeiles popetue BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 108 (1859).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 282 (1865); *ib.* J. f. O. 1874, p. 117.

Chordeiles gundlachi BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860).

Chordeiles popetue var. *minor* BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 400 (1874).

SP. CHAR. *Male:*—Above dark brown, variegated with white and tawny; underparts tawny, banded with brown; throat tawny, becoming whitish on the breast; a white line from sides of throat to chin; first two primaries with a spot on the inner web, and the second and third with a band of white; edge of carpus white.

The female differs from the male by having the sides of the throat rufous instead of white.

Length, 8.25; wing, 7; tail, 4; tarsus, .50; bill, .20.

HABITAT. Antilles.

Chordeiles virginianus (BRISS.).

Caprimulgus virginianus BRISSON, Orn. p. 477 (1760).—GMEL. Syst. Nat. I, ii, 1028 (1788).

Chordeiles virginianus GOSSE, Bds. Jam. p. 33 (1847).—LEMB. Aves Cuba, p. 51 (1850) (?).—SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 600 (?).—CORY, List Bds. W. I. p. 16 (1885).

Chordeiles popetue var. *popetue* BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 401 (1874) (Greater Antilles).

I have never seen a specimen of *C. virginianus* from the West Indies; several authors have recorded it, but it is possible that they may have mistaken *C. minor* for this species.

GENUS **Antrostomus** GOULD.

Antrostomus "GOULD, Icones Avium, 1838."

Antrostomus rufus (BODD.).

Caprimulgus rufus "BODD. et GMEL. ex Pl. Enl. p. 735."

Antrostomus rufus CASSIN, Pr. Acad. Nat. Sci. Phila. V, p. 183.—SCL. P. Z. S., 1866, p. 136.—GRAY, Handl. Bds. I, p. 59 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 96 (1873).—CORY, List Bds. W. I. p. 16 (1885).

Antrostomus rutilus BURM. Syst. Ueb. II, p. 385.—ALLEN, Bull. Nutt. Orn. Club, V, p. 169 (1880).

SP. CHAR.—Upper surface mottled and varied with brown and black; the terminal portions of the feathers on the head with broad patches of black in the centre of the feathers; underparts darkening on the breast, but becoming heavily tinged with rufous on the abdomen and crissum; primaries broadly blotched with light rufous, heaviest on the outer webs; a large blotch of white on the terminal portion of the inner web of the outer tail-feather, showing upon both webs of the second and third feathers; central tail-feathers dark brown, heavily mottled with rufous; feet black. In general appearance the bird is smaller and much darker than *A. carolinensis*.

Length, 10.50; wing, 7.50; tail, 5; tarsus, .60.

Recorded from Santa Lucia, W. I.

Antrostomus carolinensis (GMEL.).

Caprimulgus carolinensis GMEL. Syst. Nat. I, p. 1028 (1788).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 96 (1840).

Antrostomus carolinensis GUNDL. Repert. Fisico-Nat. Cuba, I, p. 283 (1865); *ib.* J. f. O. 1874, p. 120 (Cuba).—SCL. P. Z. S. 1866, p. 136 (Jamaica).—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 201 (1878) (Porto Rico).—A. & E. NEWTON, Handb. Jamaica, p. 109 (1881).—

CORY, Bds. Bahama I. p. 104 (1880); *ib.* Bull. Nutt. Orn. Club, VI, p. 153 (1881) (Haiti); *ib.* List Bds. W. I. p. 16 (1885).

Androstomus carolinensis CORY, Bds. Haiti & San Domingo, p. 84 (1885).

Recorded from Cuba, Porto Rico, Jamaica, Haiti, San Domingo, and Bahamas.

Antrostomus cubanensis LAWR.

Caprimulgus vociferus D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 98 (1840).—LEMB. Aves Cuba, p. 130 (1850).

Antrostomus vociferus GUNDL. J. f. O. 1856, p. 6.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860).—SCL. & SALV. Nom. Avium Neotr. p. 96 (1873).

Antrostomus cubanensis LAWR. Ann. Lyc. Nat. Hist. N. Y. 1862, p. 260.—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 283 (1865); *ib.* J. f. O. 1874, p. 120.—GRAY, Handl. Bds. I, p. 59 (1869).—CORY, List Bds. W. I. p. 16 (1885).

Antrostomus macromystax var. *cubanensis* BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 409 (1874).

"*Adult male:*—Upper plumage dark ash, minutely mottled with dull rufous and grey, the feathers conspicuously marked with longitudinal stripes of black in their centres; a line extends from the bill over the eye and along the crown of greyish white, tinged with pale rufous and intermixed with black; the tertiaries ochraceous-white, beautifully variegated with black, and having near the end of each feather an irregular patch of velvety black; wing-coverts the same color as the back, some of them marked near their ends with ochraceous spots; primaries dark reddish-brown sprinkled with dull rufous and grey at their ends, and having bright rufous spots arranged regularly on their outer webs, there are spots also on their inner webs, more obscure in color and assuming a mottled form; secondaries dark brown, mottled with grey on the outer webs, and tinged with rufous on the inner; tail very full, of a fine deep brown, the two central tail-feathers closely banded with curving bars of mottled grey and pale rufous, the next feather on each side, with the bars dull rufous, and rather narrowly tipped with ochraceous-white, less in extent on the inner web, the three outer feathers are irregularly barred with dull rufous mottling for their basal half, their ends for about an inch creamy-white, with ochraceous edges; throat dark brown, minutely freckled with rufous, the neck immediately below this color crossed with a band of pale rufous; a line of pale rufous-white or ochraceous spots extend along below the under mandible, and down the side of the neck, a few spots of the same in a line below the eye; on the side of the neck enclosed by these spots and the band across the throat,

is a triangular blackish-brown patch, speckled with rufous; sides of the head brown, freckled with minute rufous spots; feathers of the breast and abdomen ochraceous white, more or less tinged with rufous, and having their centres dark brown, and their sides and ends barred and mottled with the same color; the exposed ends of the feathers being but little mottled give quite a light appearance to the under plumage; lower part of the abdomen and under tail-coverts dull pale rufous, the feathers of the latter with dark markings along their shafts; sides under the wings dull rufous narrowly barred with dark brown; under wing-coverts brown mottled with rufous; tarsi clothed in front with rufous brown feathers; the bill is light brown, black at the point, and having very strong bristles, some of which are nearly two inches in length, and furnished with lateral filaments; feet brown. Length about 11½ inches; wing 7½; tail 5¾; tarsus ½." (Lawr. l. c. orig. descr.)

Habitat. Cuba.

Genus Stenopsis Cassin.

Stenopsis Cassin, Pr. Acad. Nat. Sci. Phila. 1851, p. 179.

Stenopsis cayennensis (Gmel.).

Caprimulgus cayennensis Gmel. Syst. Nat. I, p. 1031 (1788).—Cab. in Schomb. Guiana, III, p. 710 (1848).
Caprimulgus cayanus Latii. Ind. Orn. II, p. 587 (1790).
Caprimulgus leopetes Jard. & Selby, Ill. Orn. II, pl. 87.
Caprimulgus odontopteron Less. Rev. Zool. 1839, p. 105.
Antrostomus cayennensis Bp. Consp. I, 61 (1850).
Stenopsis cayennensis Cassin, Pr. Acad. Nat. Sci. Phila. 1851, p. 179.—Cab. & Hein. Mus. Hein. III, p. 91.—Scl. Cat. Am. Bds. p. 280 (1862).—Gray, Handl. Bds. I, p. 59 (1869).—Scl. & Salv. Nom. Avium Neotr. p. 96 (1873) (Martinique).—Cory, List Bds. W. I. p. 16 (1885).

Sp. Char. *Male:*—Upper surface a mixture of gray, rufous, dark brown, and white, the feathers mottled and edged with the different colors; the two central tail-feathers gray, curiously marked with dark brown, rest of the tail-feathers white, edged with brown on the outer webs, and banded near the centre, the brown lacking on the outer web of the outer feather; under surface of tail-feathers white, showing a band of brown across the centre; throat and abdomen white; breast heavily mottled with rufous; wings dark brown, the coverts mottled with rufous and blotches of white; a heavy band of white crossing the middle of the primaries.

Female.—Entirely lacks the white markings on the wings and tail; the general plumage is dull brown, variously marked with

brown and rufous; the under surface being dull rufous, narrowly banded with brown; wings and tail brown, marked with rufous.

Length (skin), 8.75; wing, 5.50; tail, 4.50; tarsus, 60.

It is claimed that this species occurs in the Lesser Antilles. A specimen in my collection is labelled "Trinidad," and Messrs. Sclater and Salvin give it from Martinique.

GENUS Siphonorhis SCL.

Siphonorhis SCLATER, P. Z. S. 1861, p. 77.

Siphonorhis americanus (LINN.).

'*Caprimulgus jamaicensis* BRISS. Av. II, p. 480."
Caprimulgus americanus LINN. Syst. Nat. I, p. 346 (1766).
Chordeiles americanus BP. Consp. I, p. 63 (1850).
Siphonorhis americanus SCL. P. Z. S. 1861, p. 77; *ib.* Cat. Am. Bds. p. 282 (1862).—ALBRECHT, J. f. O. 1862, p. 199.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 286.—GRAY, Handl. Bds. I, p. 60 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 97 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 109 (1881).
Siphonorhis americana CORY, List Bds. W. I. p. 16 (1885).

SP. CHAR. *Male:*—General plumage above rufous brown, mottled and streaked with gray, dull white, bright rufous, and dark brown; a patch of dull white on the throat; breast rufous, delicately dotted and lined with brown; feathers of the underparts broadly tipped with dull white; tail dull rufous, streaked and marked with brown, showing a sub-terminal band of brown, the feathers tipped with white; primaries dark brown, broadly dotted with rufous on the outer webs, showing various markings of rufous on the inner webs.

Length (skin), 9; wing, 5; tail, 4.75; tarsus, .90.

HABITAT. Jamaica.

FAMILY CYPSELIDÆ.

GENUS Cypselus ILLIG.

Cypselus ILLIGER, Prodr. Syst. Mamm. et Avium, p. 229 (1811).

Cypselus phœnicobius (GOSSE).

Tachornis phœnicobia GOSSE, Bds. Jam. p. 58 (1847).—GUNDL. J. f. O. 1856, p. 5.—ALBRECHT, J. f. O. 1862, p. 194.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 287.—A. & E. NEWTON, Handb. Jamaica, p. 108 (1881).

Cypselus iradii LEMB. Aves Cuba, p. 50 (1850).
Cypselus phœnicobia BP. Consp. I, p. 66 (1850).
Cypselus cayennensis SALLÉ, P. Z. S. 1857, p. 232.
Tachornis gradii BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860).
Cypselus phœnicobius SCL. P. Z. S. 1865, p. 604.—SCL. & SALV. Nom. Avium Neotr. p. 94 (1873).—CORY, Bull. Nutt. Orn. Club, VI, p. 153 (1881); *ib.* Bds. Haiti & San Domingo, p. 87 (1885); *ib.* List Bds. W. I. p. 17 (1885).
Tachornis iradii GUNDL. Repert. Fisico-Nat. Cuba, I, p. 282 (1866); *ib.* J. f. O. 1874, p. 116.
Cypselus cayanensis BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 95 (1866).
Tachornis phœnicobius GRAY, Handl. Bds. I, p. 64 (1869).

SP. CHAR. *Male:*—General plumage dull greenish black; throat, rump, abdomen, and a narrow line in the centre of the belly white; bill and feet black.

The sexes are similar.

Length, 3.75; wing, 3.70; tail, 1.75; tarsus, .20; bill, .15.

HABITAT. Cuba, Jamaica, Haiti, and San Domingo.

GENUS Cypseloides STREUBEL.

Cypseloides STREUBEL, Isis, 1848, p. 360.

Cypseloides niger (GMEL.).

Hirundo niger GMEL. Syst. Nat. I, p. 1025 (1788).
Cypselus niger GOSSE, Bds. Jam. p. 63 (1847).—GUNDL. & LAWR. Ann. N. Y. Lyc. VI, p. 268 (1858).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860).—ALBRECHT, J. f. O. 1861, p. 207; *ib.* 1862, p. 194.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 287.—A. & E. NEWTON, Handb. Jamaica, p, 108 (1881).
Cypselus nigra BP. Consp. I, p. 66 (1850).
Cypselus borealis KENN. Pr. Acad. Nat. Sci. Phila. 1857, p. 202.—SCL. P. Z. S. 1865, p. 615.
Nephocætes niger BAIRD, CASS. & LAWR. Bds. N. Am. p. 142 (1858).—GRAY, Handl. Bds. I, p. 68 (1869).—GUNDL. J. f. O. 1874, p. 115; *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 200 (1878).
Cypseloides niger SCL. P. Z. S. 1865, p. 615.—SCL. & SALV. Nom. Avium Neotr. p. 95 (1873).—LAWR. Pr. U. S. Nat. Mus. I, pp. 459, 487 (1878).—SCL. Ibis, 1880, p. 74.
Nechopœtes niger GUNDL. Repert. Fisico-Nat. Cuba, I, p. 281 (1866.)
Nephœcetes niger COOPER, Orn. Cal. I, p. 349 (1870).—BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 429 (1874).—CORY, Bds. Haiti & San Domingo, p. 88 (1885); *ib.* List Birds W. I. p. 17 (1885).

SP. CHAR. *Male:*—Entire plumage dark brown, showing slight greenish

reflections when held to the light; forehead slightly washed with white; a dark spot in front of the eye; bill and feet black.

The sexes are similar.

Length, 6; wing, 6; tail, 2.50; tarsus, .40; bill, .20.

HABITAT. San Domingo, Jamaica, Cuba, Porto Rico, and Guadeloupe.

GENUS **Chætura** STEPH.

Chætura STEPHENS, Shaw's Gen. Zool. Birds, XIII, pt. ii, p. 76 (1825).

Chætura dominicana LAWR.

Chætura poliura LAWR. Pr. U. S. Nat. Mus. I, p. 62 (1878).

Chætura dominicana LAWR. Ann. N. Y. Acad. Sci. I, p. 255 (1878); *ib.* Pr. U. S. Nat. Mus. I, p. 487 (1878).—SCL. Ibis, 1880, p. 75.—CORY, List Bds. W. I. p. 17 (1885).

SP. CHAR.—Entire upper surface dark brown, almost black, showing a faint olive tinge to the feathers when held in the light; under portions dark smoky brown, palest on the throat; wings and tail dark brown; rump lighter than than the back; bill and feet black.

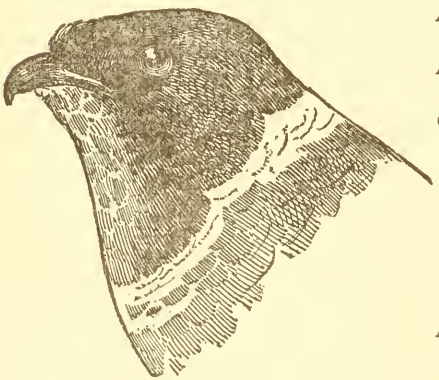
Length, 4; wing, 3.80; tail, 2.

HABITAT. Dominica.

GENUS **Hemiprocne** NITZSCH.

Hemiprocne NITZSCH, Pterylogr. p. 123 (1840).

Hemiprocne zonaris (SHAW).



Hirundo zonaris SHAW, in Mill. Cim. Phys. pl. 55.

Hirundo albicollis VIEILL. Nouv. Dict. XIV, p. 524.

Cypselus collaris TEMM. Pl. Col. p. 195 (1820–39).—MAX. Beitr. III, p. 344 (1831).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860).—ALBRECHT, J. f. O. 1861, p. 206.—GUNDL, J. f. O. 1874, p. 114.

Hemiprocne collaris NITZSCH, Pterylogr. p. 123 (1840).

Pallene collaris BOIE, Isis, 1844, p. 168.
Acanthylis collaris GOSSE, Bds. Jam. p. 51 (1847).—GRAY, List Sp. Fiss. p. 15.—BP. Consp. I, p. 64 (1850).—BURM. Syst. Ueb. II, p. 364.
Hemiprocne torquata STREUBEL, Isis, 1848, p. 362.
Acanthylis albicollis SCL. P. Z. S. 1854, p. 10.
Hemiprocne zonaris SCL. & SALV. Ibis, 1860, p. 37.—CAB. & HEIN. Mus. Hein. III, p. 84 (1860).—SCL. & SALV. Nom. Avium Neotr. p. 95 (1873).—CORY, List Bds. W. I. p. 17 (1885).
Chætura zonaris SCL. P. Z. S. 1861, p. 79; *ib.* Cat. Am. Bds. p. 282 (1862); *ib.* P. Z. S. 1865, p. 609.—ALBRECHT, J. f. O. 1862, p. 201.
Nephocætes collaris GUNDL. J. f. O. 1862, p. 177 (?); *ib.* Contrib. Orn. Cuba, p. 83 (1876).
Chætura collaris MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 286.
Acanthyllis zonaris A. & E. NEWTON, Handb. Jamaica, p. 108 (1881).

SP. CHAR. *Male:*—Very large. Entire plumage brownish-black, deepest on the back, and showing a tinge of bluish when held in the light, lightest on the throat and primaries; an unbroken collar of white passes around the neck.

The female seems to be similar, but some specimens show more white where the collar touches the breast.

Length (skin), 7.50; wing, 8; tail, 2.75.

HABITAT. Jamaica and Cuba. San Domingo?

FAMILY TROCHILIDÆ.

GENUS Glaucis BOIE.

Glaucis BOIE, Isis, 1831, p. 545.

Glaucis hirsuta (GMEL.).

Trochilus hirsutus GMEL. Syst. Nat. I, p. 490 (1788).
Trochilus brasiliensis LATH. Ind. Orn. I, p. 308 (1790).
Trochilus ferrugineus WEID, Beitr. IV, p. 120, Sp. 21.
Trochilus mazeppa LESS. Troch. p. 18, pl. 3 (1831).
Trochilus superciliosus LESS. Colib. t. 6 (1831) ♀ ?
Glaucis hirsuta BOIE, Isis, 1831, p. 545.—REICH. Aufz. Colib. p. 15 (1853).—BP. Rev. Mag. Zool. 1854, p. 249.—CAB. & HEIN. Mus. Hein. III, p. 4 (1860).—GOULD, Mon. Troch. I, pl. 5 (1861).—SALV. & ELLIOT, Ibis, 1873, p. 276.—MULS. Hist. Nat. Ois. Mouch. I, p. 39—ELLIOT, Mon. Troch. p. 6 (1878).—CORY, List Bds. W. I. p. 17 (1885).
Trochilus dominicus LICHT. (*nec* Linn.) Doublt. p. 10, Sp. 110.
Polytmus hirsutus GRAY, Gen. Bds. I, p. 108 (1844).

Glaucis mazeppa REICH. Aufz. Colib. p. 15 (1853).—BP. Rev. Mag. Zool. 1854, p. 249.—GOULD, Mon. Troch. I, pl. 6 (1861).

Glaucis melanura GOULD, P. Z. S. 1860, p. 364; *ib.* Mon. Troch. I, pl. 9 (1861).

Glaucis lanceolata GOULD, Mon. Troch. I, pl. 8 (1861).

Glaucis ænea LAWR. Pr. Acad. Nat. Sci. Phila. 1867, p. 232.

Glaucis hirsutus SCL. & SALV. Nom. Avium Neotr. p. 78 (1873).—LAWR. Pr. U. S. Nat. Mus. I, pp. 271, 487 (1878).

SP. CHAR. *Male:*—Bill stout, long and curved; the upper mandible dark, the lower mandible light; top of head dull brown; back green, the feathers delicately edged with rufous; tail bronze green on the central feathers, the rest rufous, showing a sub-terminal bar of greenish brown, and all the feathers tipped with white; underparts dull rufous; the throat showing greenish feathers in places.

Female:—Similar to the male, but lacks the mottling on the throat, the entire surface being rufous.

Length (skin), 4.75; wing, 2; tail, 1.75; bill, 1.25.

HABITAT. Grenada.

GENUS **Lampornis** SWAINS.

Lampornis SWAINSON. Zool. Journ. III, p. 358 (1827).

Lampornis dominicus (LINN.).

Trochilus dominicus LINN. Syst. Nat. I, p. 191 (1766).—GMEL. Syst. Nat. I, p. 489 (1788).—LATH. Ind. Orn. I, p. 309 (1790).

Trochilus margaritaceus GMEL. Syst. Nat. I, p. 490 (1788).

Trochilus aurulentus VIEILL. Ois. Dor. pl. XII (1802).—SHAW, Gen. Zool. VIII, p. 306 (1811).

Polytmus margaritaceus GRAY, Gen. Bds. I, p. 108 (1844).

Lampornis margaritaceus BP. Consp. I, p. 72 (1850).

Eulampis aurulentis BP. Consp. I, p. 71 (1850); *ib.* Rev. Mag. Zool. 1854, p. 250.

Margarochrysis aurulenta REICH. Aufz. Colib. p. 11 (1853).

Hypophania dominica REICH. Aufz. Colib. p. 11 (1853).

Lampornis aurulenta SALLÉ, P. Z. S. 1857, p. 233.

Lampornis aurulentus CASSIN, Pr. Acad. Nat. Sci. Phila. 1860, p. 377.—GOULD, Mon. Troch. II, pl. 79 (1861).—MULS. Hist. Nat. Ois. Mouch. I, p. 152.—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 223 (1878).—CORY, Bull. Nutt. Orn. Club, VI, p. 153 (1881).—TRISTRAM, Ibis, 1884, p. 168.

Lampornis virginalis GOULD, Mon. Troch, II, pl. 80 (1861).

Trochilus (Lampornis) aurulentus BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 95 (1866).—SUNDEV. Oefv. K. Vet. Akad. För. 1869, p. 600.

Lampornis dominicus ELLIOT, Ibis, 1872, p. 349; *ib.* Mon Troch. p. 41 (1878). — CORY, Bds. Haiti & San Domingo, p. 90 (1885); *ib.* List Bds. W. I. p. 17 (1885).

SP. CHAR. *Male:*— Entire upper parts yellowish green; throat bright golden green; breast and belly purplish black; flanks green, showing a spot of white; under tail-coverts dark purple; wings purplish brown; outer tail-feathers violet-purple, bordered with steel blue; median feathers bronze green; bill and feet black.

Female:—Underparts dull gray, whitening on the throat; tail tipped with white; rest as in the male.

Immature specimens have the underparts dull brownish white, with a line of metallic green passing down the middle of the throat, continuing in a line of black down the middle of the breast and abdomen to the vent.

Length, 4.90; wing, 2.60; tail, 1.85; bill, .93.

HABITAT. Haiti, San Domingo, Porto Rico, and St. Thomas?

Lampornis viridis (VIEILL.).

Trochilus viridis AUD. & VIEILL. Ois. Dor. I, p. 34 (1802).—SUNDEV. Oefv. K. Vet. Akad. För. 1869, p. 600.

Lampornis viridis BP. Consp. I, p. 71 (1850).—GOULD, Mon. Troch. II, pl. 78 (1861).—SCL. & SALV. Nom. Avium Neotr. p. 81 (1873).—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 222 (1878).—CORY, List Bds. W. I. p. 17 (1885).

Chalybura viridis REICH. Aufz. Colib. p. 10 (1853).

Agyrtria viridis REICH. Troch. Enum. p. 7 (1855).

SP. CHAR. *Male:*—General plumage bright green, showing a bluish tinge on the under surface when held in the light; tail steel blue; wings dark brown; bill black.

Female:— Upper surface bright golden green; head brownish; underparts dull ashy-white, tinged with green on the sides and flanks; central tail-feathers bronze green, rest of tail-feathers showing dark blue on their inner webs, and golden brown on the outer, all of the feathers narrowly tipped with white.

Length (skin), 4; wing, 2.50; tail, 1.75.

HABITAT. Porto Rico.

Lampornis mango (LINN.).

Trochilus mango LINN. Syst. Nat. I, p. 191 (1766).—GMEL. Syst. Nat. I, p. 491 (1788).

Trochilus porphyrurus SHAW, Nat. Misc. IX, p. 333.

Polytmus porphyrurus GRAY, Gen. Bds. I, p. 108 (1844).

Lampornis mango Gosse, Bds. Jam. p. 88 (1847).—Bp. Consp. I, p. 72 (1850).—Gould, Mon. Troch. II, pl. 74 (1861).—March, Pr. Acad. Nat. Sci. Phila. 1863, p. 284.—Elliot, Ibis, 1872, p. 350.—Scl. & Salv. Nom. Avium Neotr. p. 81 (1873).—Elliot, Mon. Troch. p. 39 (1878).— A. & E. Newton, Handb. Jamaica, p. 108 (1881).—Cory, List Bds. W. I. p. 17 (1885).

Floresia porphyrura Reich. Aufz. Colib. p. 11 (1853).

Lampornis floresi Bp. Rev. Mag. Zool. 1854, p. 250.

Anthracothorax porphyrurus Reich. Troch. Enum. p. 8 (1855).

Lampornis porrhyrura Cab. & Hein. Mus. Hein. III, p. 19 (1860).—Scl. P. Z. S. 1861, p. 79.— Albrecht, J. f. O. 1862, p. 201.

Lampornis porphyrurus Gould, Mon. Troch. II, pl. 81 (1861).—Muls. Hist. Nat. Ois. Mouch. I, p. 163.

Eudoxa porphyrura Heine, J. f. O. 1863, p. 179.

Sp. Char. *Male:*—Upper parts olive green; a golden brownish tinge on the back, showing a gloss of purple on the nape; a broad band of metallic purple passes from the bill on each side of the neck; throat and upper breast greenish black; dull black on the belly; tail-feathers purple, edged with steel blue, two central feathers dull black.

The female of this species is described as having the chin green and the throat greenish purple.

Length, 4.85; wing, 2.70; tail, 1.90; bill, .88.

Habitat. Jamaica.

Genus Eulampis Boie.

Eulampis Boie, Isis, 1831, p. 547.

Eulampis jugularis (Linn.).

Trochilus jugularis Linn. Syst. Nat. I, p. 190 (1766).—Lath. Ind. Orn. I, p. 305 (1790).

Trochilus auratus Gmel. Syst. Nat. I, p. 487 (1788).

Trochilus violaceus Gmel. Syst. Nat. I, p. 488 (1788).

Trochilus venustissimus Gmel. Syst. Nat. I, p. 490 (1788).

Trochilus cyanomelas Gmel. Syst. Nat. I, p. 498 (1788).

Trochilus cyaneus Lath. Ind. Orn. I, p. 309 (1790).

Trochilus granatinus Lath. Ind. Orn. I, p. 305 (1790).

Trochilus bancrofti Lath. Ind. Orn. I, p. 317 (1790).

Souimanga prasinoptère Vieill. Ois. Dor. II, p. 65 (1802).

"*Certhia prasinoptera* Sparr. Mus. Carls. t. 81" ?

Trochilus (Eulampis) auratus Less. Syn. Genr. Troch. p. 7 (1831).

Polytmus jugularis Gray, Gen. Bds. I, p. 108 (1844).

Topaza violacea Gray, Gen. Bds. I. p. 110 (1844).

Eulampis jugularis Bp. Consp. I, p. 72 (1850).—Reich. Aufz. Colib. p.

11 (1853).— Cab. & Hein. Mus. Hein. III, p. 17 (1860).—Gould. Mon. Troch. II, pl. 82 (1861).—Taylor, Ibis, 1864, p. 169.—Scl. P. Z. S. 1871, p. 272.—Elliot, Ibis, 1872, p. 352.—Muls. Hist. Nat. Ois. Mouch. II, p. 131.—Scl. & Salv. Nom. Avium Neotr. p. 81 (1873).—Elliot, Mon. Troch. p. 43 (1878).—Lawr. Pr. U. S. Nat. Mus. I, pp. 60, 192, 358, 458, 487 (1878).—Allen, Bull. Nutt. Orn. Club, V, p. 167 (1880). — Lister, Ibis, 1880, p. 42. — Grisdale, Ibis, 1882, p. 486.—Cory, List Bds. W. I. p. 17 (1885).

Sp. Char. *Male:*—Upper surface velvet black; wings metallic green; upper and under tail-coverts bright metallic bluish green; entire throat including the chin beautiful purple, dull golden in some lights; tail bluish green; bill black.

Length, 4.50; wing, 3.05; tail, 1.65; bill .90.

Habitat. Lesser Antilles.

Eulampis holosericeus (Linn.).

Trochilus holosericeus Linn. Syst. Nat. I, p. 191 (1766).— Lath. Ind. Orn. I, p. 305 (1790).—Less. Colib. p. 76 (1831).—Sundev. Oefv. K. Vet. Akad. För. 1869, p. 585.

Polytmus holosericeus Gray, Gen. Bds. I, 108 (1844).

Eulampis holosericeus Bp. Consp. I, p. 72 (1850).—Cassin, Pr. Acad. Nat. Sci. Phila. 1860, p. 377.—Gould, Mon. Troch. II, pl. 83 (1861). —Taylor, Ibis, 1864, p. 170.— Scl. P. Z. S. 1871, p. 272: *ib.* 1874, p. 175.—Elliot, Ibis, 1872, p. 352.—Scl. & Salv. Nom. Avium Neotr. p. 81 (1873).—Muls. Hist. Nat. Ois. Mouch. I, p. 134.— Lawr. Pr. U. S. Nat. Mus. I, pp. 60, 192, 234, 272, 358, 458, 487 (1878).—Elliot, Mon. Troch. p. 42 (1878).—Allen, Bull. Nutt. Orn. Club, V, p. 167 (1880).—Lister, Ibis, 1880, p. 42.—Grisdale, Ibis, 1882, p. 486.—Cory, List Bds. W. I. p. 17 (1885).

Sericotes chlorolæmus Reich. Aufz. Colib. p. 11 (1853).

Sericotes holosericeus Reich. Aufz. Colib. p. 11 (1853).

Eulampis chlorolæmus Bp. Rev. Mag. Zool. 1854, p. 250.—Gould, Mon. Troch. II, pl. 84 (1861).

Anthracothorax (Sericotes) holosericeus Reich. Troch. Enum. p. 9 (1855).

Anthracothorax chlorolæmus Reich. Troch. Enum. p. 9 (1855).

Lampornis holosericeus Cab. & Hein. Mus. Hein. III. p. 19 (1860).— Gundl. Anal. Soc. Esp. Hist. Nat. VII, p. 224 (1878).

Lampornis chlorolæmus Cab. & Hein. Mus. Hein. III, p. 19 (1860).

Eulampis longirostris Gould, Intr. Troch. octavo ed. p. 69 (1861).

Trochilus (Lampornis) holosericeus Sundev. Oefv. K. Vet. Akad. För. 1869, p. 600.

Sp. Char. *Male:*—Upper plumage dark green, with a slight golden tinge on the back; throat bright green, ending with a patch of blue

on the breast; belly greenish black; upper and under tail-coverts bright bluish-green; tail dark blue, showing slight purple reflections.

The sexes are described as similar.

Length, 4.30; wing, 3; tail, 1.50; bill, .85.

Habitat. Lesser Antilles.

Genus **Aithurus** Cab. & Hein.

Aithurus Cab. & Hein. Mus. Hein. III, p. 50 (1860).

Aithurus polytmus (Linn.).

Trochilus polytmus Linn. Syst. Nat. I, p. 189 (1766).—Gmel. Syst. Nat. I, p. 486 (1788).—Lath. Ind. Orn. I, p. 302 (1790).—Gosse, Bds. Jam. p. 97 (1847).—Gould, Mon. Troch. IV, pl. 98 (1861).

Ornismya cephalatra Less. Ois. Mouch. p. 78 (1829).

Trochilus maria Hill, Ann. Mag. Nat. Hist. III, p. 258 (1849).—Gosse, Ill. Bds. Jam. pl. 22.

Polytmus cephalatra Bp. Consp. I, p. 72 (1850).

Polytmus cephalater Bp. Rev. Mag. Zool. 1854, p. 254.—Scl. P. Z. S. 1861, p. 79.—Albrecht, J. f. O. 1862, p. 201.

Aithurus polytmus Cab. & Hein. Mus. Hein. III, p. 50 (1860).—Gould, Intr. Troch. octavo ed. p. 75 (1861).—March, Pr. Acad. Nat. Sci. Phila. 1863, p. 284.—Gray, Handl. Bds. I, p. 134 (1869).—Scl. & Salv. Nom. Avium Neotr. p. 82 (1873).—Elliot, Mon. Troch. p. 96 (1878).—A. & E. Newton, Handb. Jamaica, p. 108 (1881).—Cory, List Bds. W. I. p. 17 (1885).

Aithurus fuliginosus March. Pr. Acad. Nat. Sci. Phila. 1863, p. 285.—Gray, Handl. Bds. I, p. 134 (1869).

Sp. Char. *Male:*—Top of head with elongated feathers, velvety black; back dark green; throat and underparts bright green; wings brown, with a tinge of purple; tail black, the two long tail-feathers showing peculiar uneven edging of the webs; bill dull red.

Female:—Upper parts green, brownish on the head; underparts white, tinged with green on the sides and flanks; middle tail-feathers green, bluish near the tip; outer tail-feathers heavily tipped with white, wanting on the two middle feathers.

Length, 8.50; wing, 2.50; tail, 5.50; bill, .80.

Habitat. Jamaica.

Genus **Thalurania** Gould.

Thalurania Gould, P. Z. S. 1848, p. 13.

Thalurania bicolor (GMEL.).

Trochilus bicolor GMEL. Syst. Nat. I, p. 496 (1788).—VIEILL. Ois. Dor. p. 75 (1802).

Ornismya wagleri LESS. Hist. Ois. Mouch. p. 203 (1829).

Hylocharis wagleri GRAY, Gen. Bds. I, p. 114 (1844).

Thalurania wagleri BP. Consp. I, p. 77 (1850).—REICH. Aufz. Colib. p. 7 (1853).—CAB. & HEIN. Mus. Hein. III, p. 24 (1860).—GOULD, Mon. Troch. II, pl. 109 (1861).—SCL. & SALV. Nom. Avium Neotr. p. 83 (1873).—SALV. & ELLIOT, Ibis, 1873, p. 360.—LAWR. Ann. N. Y. Acad. Sci. I, p. 46 (1878); *ib.* Pr. U. S. Nat. Mus. I, pp. 61, 487 (1878).

Thalurania bicolor GRAY, Handl. Bds. I, p. 130 (1869).—ELLIOT, Mon. Troch. p. 102 (1878).—CORY, List Bds. W. I. p. 17 (1885).

SP. CHAR. *Male:*—Entire head and throat deep blue, but very slightly metallic; back dark green; breast and abdomen metallic golden-green; tail-coverts greenish-blue; tail steel blue; wings brown; upper mandible black; under mandible flesh-color, tipped with black.

Female:—Upper surface green, showing slight bronze reflections; underparts dull white, marked with green on the flanks and sides; outer tail-feathers tipped with white; rest of tail-feathers green, broadly marked with blue on the terminal portion.

Length, 3.80; wing, 2.35; tail, 1.70; bill, .60.

HABITAT. Dominica.

GENUS Trochilus LINN.

Trochilus LINNÆUS, Syst. Nat. I, p. 189 (1766).

Trochilus colubris LINN.

Trochilus colubris LINN. Syst. Nat. I, p. 191 (1766).—CAB. J. f. O. 1856, p. 98 (Cuba).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 291 (1866); *ib.* J. f. O. 1874, p. 141 (Cuba); *ib.* 1878, p. 159 (Porto Rico); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 221 (1878) (Porto Rico).—ELLIOT, Mon. Troch. p. 105 (1878) (Bahamas).—CORY, List Bds. W. I. p. 18 (1885).

Orthorhynchus colubris D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 126 (1840).

Melisuga colubris BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860) (Cuba).

Recorded from Bahamas, Cuba, and Porto Rico.

GENUS Mellisuga BRISS.

Mellisuga BRISSON, Orn. III, p. 695 (1760).

Mellisuga minima (LINN.).

Trochilus minimus LINN. Syst. Nat. I, p. 193 (1766).—GMEL. Syst. Nat. I, p. 500 (1788).—LATH. Ind. Orn. I, p. 320 (1790).
Trochilus minutulus VIEILL. Ois. Am. Sept. II, p. 73 (1807).
Trochilus vieilloti SHAW, Gen. Zool. VIII, p. 347 (1812).
Ornismya minima LESS. Ois. Mouch. pl. 79 (1829).
Hylocharis nigra GRAY, Gen. Bds. I, p. 114 (1844).
Mellisuga humilis GOSSE, Bds. Jam. p. 127 (1847).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 285.
Trochilus catherinæ SALLÉ, Rev. Zool. 1849, p. 498.
Hylocharis niger BP. Consp. I, p. 81 (1850).
Mellisuga minima BP. Consp. I, p. 81 (1850).—REICH. Aufz. Colib. p. 6 (1853).—SALLÉ, P. Z. S. 1857, p. 233.—GOULD, Mon. Troch. III, p. 133.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 285.—MULS. Hist. Nat. Ois. Mouch. IV, p. 82 (1877).—ELLIOT, Mon. Troch. p. 103 (1878).—A. & E. NEWTON, Handb. Jamaica, p. 108 (1881).—CORY, Bull. Nutt. Orn. Club, VI, p. 153 (1881); *ib.* Bds. Haiti & San Domingo, p. 92 (1885); *ib.* List Bds. W. I. p. 18 (1885).
Mellisuga humila ALBRECHT, J. f. O. 1862, p. 201.
Trochilus (*Mellisuga*) *minimus* BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 95 (1866).

SP. CHAR. *Male:*—Above bright green; flanks green; throat dull white, spotted with brown, heaviest on the lower part; underparts white; under tail-coverts tipped with green; tail black; bill and feet black.
Female:—Resembles the male, but lacks the spots on the throat; lateral tail-feathers tipped with white.
Length, 2.70; wing, 1.50; tail, .60; bill, .45.
HABITAT. Jamaica, Haiti, and San Domingo.

GENUS **Calypte** GOULD.

Calypte GOULD, Intr. Troch. octavo ed. p. 87 (1861).

Calypte helenæ (LEMB.).

Orthorhynchus helenæ LEMB. Aves Cuba, p. 70 (1850).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860).
Orthorhynchus boothi CAB. J. f. O. 1856, p. 99.—GUNDL. J. f. O. 1859, p. 347.
Calypte helenæ GOULD, Mon. Troch. III, pl. 136 (1861).—GRAY, Handl. Bds. I, p. 145 (1869).—ELLIOT, Ibis, 1872, p. 354.—GUNDL. J. f. O. 1874, p. 144.—MULS. Hist. Nat. Ois. Mouch. IV, p. 77 (1877).—ELLIOT, Mon. Troch. p. 108 (1878).—CORY, List Bds. W. I. p. 18 (1885).

Sp. Char. *Male:*—Head, throat, and elongated feathers of the neck metallic red, almost pink in some lights; upper parts greenish-blue, becoming steel-blue on the tail; breast grayish-white; belly and flanks greenish; wings purplish-brown.

Female:—Head dull brown; back green, shading into blue on the lower part; underparts grayish-white; tail bluish-green, outer feathers tipped with white.

Length (skin), 2.50; wing, 1.25; tail, .80; bill, .45.

Habitat. Cuba.

Genus Doricha Reich.

Doricha Reich. Aufz. der Colib. p. 12 (1853).

Doricha evelynæ (Bourc.).

Calothorax evelynæ Gray, Gen. Bds. I, p. 110 (1844).—Reich. Aufz. Colib. p. 13 (1853).—Gould, Mon. Troch. III, pl. 156 (1861).

Trochilus evelynæ Bourc. P. Z. S. 1847, p. 44.

Callothorax evillina Bp. Rev. Mag. Zool. 1854, p. 257.

Lucifer evelinæ Reich. Troch. Enum. p. 10 (1855).

Trochilus bahamensis Bryant, Pr. Bost. Soc. Nat. Hist. VII, p. 106 (1859).

Doricha evelynæ Gould, Intr. Troch. octavo ed. p. 95 (1861).—Elliot, Ibis, 1872, p. 353.—Muls. Hist. Nat. Ois. Mouch. IV. p. 38 (1877). Elliot, Mon. Troch. p. 125 (1878).—Cory, Bds. Bahama I. p. 108 (1880); *ib.* List Bds. W. I. p. 18 (1885).

Sp. Char. *Male:*—Above green, showing slight golden reflections on the back, with the tips of the feathers in some specimens, bluish; head darker; throat beautiful purple-violet, below which is a band of white; underparts green, mixed with rufous, shading into white on the flanks; crissum pale rufous white; wings brownish purple; tail appearing black, very dark purple in some lights; outer feathers with faint terminal spot of rufous, second with inner web, and third with inner and basal half of outer web cinnamon; bill and feet black.

Female:—Purple gorget wanting and replaced by dull white, with a slight tinge of rufous; upper parts paler than in the male; sides cinnamon, becoming brightest under the wings; central feathers of the tail bright green, the rest cinnamon; an oblique purplish band on the tips of the fourth feathers.

Length, 3.40; wing, 1.70; tail, 1.40; tarsus, .15; bill, .70.

Habitat. Bahamas.

Doricha lyrura Gould.

Doricha lyrura Gould, Ann. Mag. Nat. Hist. 4th ser. IV, pp. 111, 112 (1869).—Elliot, Ibis. 1872, p. 354.—Scl. & Salv. Nom. Avium

Neotr. p. 85 (1873). — Muls. Hist. Nat. Ois. Mouch. IV, p. 41 (1877).—Elliot, Mon. Troch. p. 126 (1878).—Cory, Bds. Bahama I. p. 110 (1880); *ib.* List Bds. W. I. p. 18 (1885).

Sp. Char. *Male:*—General appearance the same as *D. evelynæ*, but differs from it by showing the beautiful purple-violet on the forehead as well as on the throat, and also having a much longer tail, formed somewhat in the shape of a lyre, from which this bird has derived its name. The throat of *D. lyrura* shows bright blue in some lights on the lower part, while that of *D. evelynæ* is almost entirely purple-violet, showing the bluish tinge very slightly if at all.

Female:—Upper parts brownish-green; throat and upper breast dull white; rest of underparts pale rufous brown; central tail-feathers green, rest of tail-feathers pale rufous, showing a black band in the centre.

Length, 3.64; wing, 1.60; tail, 1.58; tarsus, .13; bill, .60.

Habitat. Inagua and Long Island.

Genus Bellona Muls. & Verr.

Bellona Muls. & Verr. Class. Troch. p. 75 (1865).

Bellona cristata (Linn.).

Trochilus cristatus Linn. Syst. Nat. I, p. 192 (1766).—Gmel. Syst. Nat. I, p. 498 (1788).—Lath. Ind. Orn. I, p. 317 (1790).—Schomb. Hist. Barb. p. 681.

Trochilus puniceus Gmel. Syst. Nat. I. p. 497 (1788).

Trochilus pileatus Lath. Ind. Orn. I, p. 318 (1790).

Ornismya cristata Less. Troch. p. 20 (1831).

Mellisuga cristata Gray, Gen. Bds. I, p. 113 (1844).

Orthorhynchus cristatus Bp. Consp. I, p. 83 (1850).—Reich. Aufz. Colib. p. 11 (1853).—Cab. & Hein. Mus. Hein. III, p. 61 (1860).—Gould, Mon. Troch. IV, pl. 205 (1861).—Elliot, Ibis, 1872, p. 355.—Scl. P. Z. S. 1874. p. 175.—Lawr. Pr. U. S. Nat. Mus. I, pp. 272, 487 (1878).

Orthorhynchus ornatus Gould. Mon. Troch. IV, pl. 206 (1861).—Scl. P. Z. S. 1871, p. 272.—Elliot, Ibis, 1872, p. 355.—Lister, Ibis, 1880, p. 42.

Trochilus exilis Sundev. Oefv. K. Vet. Akad. För. 1869. p. 584.

Bellona cristata Muls. Hist. Nat. Ois. Mouch. III, p. 193 (1876).—Elliot, Mon. Troch. p. 178 (1878).—Cory, List Bds. W. I. p. 18 (1885).

Orthorhynchus exilis Allen, Bull. Nutt. Orn. Club, V, p. 167 (1880).

Sp. Char. *Male:*—Forehead and crown bright golden-green, feathers lengthened, forming a crest, the green gradually fading and becoming dark blue on the crest; upper plumage green; throat dull

smoke brown; underparts dull black, showing a faint purplish tinge; bill and feet black.

Female:—Upper parts bronze-green; underparts grayish-brown; central tail-feathers bronze-green, rest of tail-feathers brownish, tipped with ash on the outer feathers.

Length, 2.90; wing, 2; tail, 1.35; bill, .40.

HABITAT. Santa Lucia, Barbadoes, St. Vincent, Martinique, and St. Bartholomew.

Bellona exilis (GMEL.).

Trochilus exilis GMEL. Syst. Nat. I, p. 484 (1788).—LATH. Ind. Orn. I, p. 310 (1790).

Trochilus cristatellus LATH. Ind. Orn. Supp. p. 39 (1790).

Mellisuga exilis GRAY, Gen. Bds. I, p. 113 (1844).

Orthorhynchus chlorolophus BP. Consp. I, p. 83 (1850).

Orthorhynchus exilis REICH. Aufz. Colib. p. 11 (1853).—BP. Rev. Mag. Zool. 1854, p. 256.—A. & E. NEWTON, Ibis, 1859, p. 141.—GOULD, Mon. Troch. IV, pl. 207 (1861).—TAYLOR, Ibis, 1864, p. 170.—ELLIOT, Ibis, 1872, p. 355.—LAWR. Pr. U. S. Nat. Mus. I, pp. 234, 458, 487 (1878).—GRISDALE, Ibis, 1882, p. 486.

Trochilus (*Orthorhynchus*) *exilis* SUNDEV. Oefv. K. Vet. Akad. För. 1869, p. 600.

Bellona exilis MULS. Hist. Nat. Ois. Mouch. III, p. 196 (1876).—ELLIOT, Mon. Troch. p. 179 (1878).—CORY, List Bds. W. I. p. 18 (1885).

SP. CHAR. *Male:*—Forehead and crest bright golden-green, becoming darker green at the tip; upper parts dark green, tinged with bronze on the upper tail-coverts; throat smoke-brown, becoming dull purplish-black on the belly; tinged with green on the sides and flanks; central tail-feathers dull green, rest of tail-feathers dark purple.

Female:—Upper plumage dark green; underparts smoke-gray, tinged with green on the sides; wing-coverts bronzy-green; wings purplish-brown; two central tail-feathers dull green; outer tail-feathers tipped with gray.

Length, 3.40; wing, 2.05; tail, 1.45; bill, .55.

HABITAT. Porto Rico, St. Thomas, Dominica, St. Croix, Montserrat, Nevis, and Martinique.

GENUS Sporadinus BP.

Sporadinus BONAPARTE, Rev. Mag. Zool. 1854, p. 255.

Sporadinus elegans (VIEILL.).

Trochilus elegans VIEILL. Ois. Dor. I, p. 32 (1802).

Ornismya swainsonii LESS. Ois. Mouch. pp. 17, 197 (1829).

Hylocharis elegans GRAY, Gen. Bds. I, p. 114 (1844).
Lampornis elegans BP. Consp. I, p. 72 (1850).
Riccordia elegans REICH. Aufz. Colib. p. 8 (1853).
Sporadinus elegans BP. Rev. Mag. Zool. 1854, p. 255.—SALLÉ, P. Z. S. 1857, p. 233.—GOULD, Mon. Troch. V, pl. 347 (1861).—SCL. & SALV. Nom. Avium Neotr. p. 94 (1873).—ELLIOT, Mon. Troch. p. 241 (1878).—CORY, Bull. Nutt. Orn. Club, IV, p. 153 (1881); *ib.* Bds. Haiti & San Domingo, p. 93 (1885); *ib.* List Bds. W. I. p. 18 (1885).
Chlorestes elegans REICH. Troch. Enum. p. 4 (1855).
Sporadicus elegans CAB. & HEIN. Mus. Hein. III, p. 25 (1860).
Trochilus (*Sporadinus*) *elegans* BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 95 (1866).

SP. CHAR. *Male:*—Upper parts bronze-green; throat bright metallic green; a portion of the breast black; wings brownish-purple; tail dark brown, with a bronze lustre on the upper surface; bill flesh color, tip black.

Female:—Above bronze-green; top of head grayish; underparts brownish-gray; central tail-feathers bronze-green; rest of tail-feathers gray, with subterminal black bar; some of the feathers glossed with green.

Length, 4; wing, 2.20; tail, 1.70: bill, .70.

HABITAT. Haiti and San Domingo.

Sporadinus riccordi (GERV.).

Trochilus riccordi GERV. Rev. Mag. Zool. 1835, pls. 41, 42.—BP. Consp. I, p. 81 (1850).
Ornismya parzudaki LESS. Rev. Zool. 1838, p. 315.
Orthorhynchus riccordi D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 128 (1840).
Hylocharis riccordi GRAY, Gen. Bds. I. p. 114 (1844).
Riccordia raimondi REICH. Aufz. Colib. p. 8 (1853).
Sporadinus riccordi BP. Rev. Mag. Zool. 1854, p. 255.—GOULD, Mon. Troch. V, pl. 348 (1861).—MULS. Hist. Nat. Ois. Mouch. II, p. 74 (1875).—ELLIOT, Mon. Troch. p. 241 (1878).—CORY, List Bds. W. I. p. 18 (1885).
Chlorestes raimondi REICH. Troch. Enum. p. 4 (1855).
Chlorestes riccordi GUNDL. J. f. O. 1856, p. 99.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 291 (1856); *ib.* J. f. O. 1874, p. 142.
Sporadicus riccordi CAB. & HEIN. Mus. Hein. III, p. 25 (1860).
Sporadinus ricordi SCL. & SALV. Nom. Avium Neotr. p. 94 (1873).—CORY, Bds. Bahama I. p. 111 (1880).
Sporadinus bracei LAWR. Ann. N. Y. Acad. Sci. I, p. 50 (1877).—CORY, Bds. Bahama I. p. 113 (1880).

SP. CHAR. *Male:*—Entire plumage bronzy green, becoming metallic on the throat; wings purplish brown; four central tail-feathers bronze, the remainder purplish black, showing bronze on the outer webs; under tail-coverts white; upper mandible dark brown; lower mandible pale, becoming dark at the tip; tail forked.

Female:—Resembles the male, except having the crown brownish; throat and centre of abdomen pale buff; under tail-coverts grayish-white.

Length, 3.60; wing, 1.80; tail, 1.50; tarsus, .15; bill, .75.

HABITAT. Cuba and Bahamas.

Sporadinus maugæi (VIEILL.).

Trochilus maugæus VIEILL. Dict. Hist. Nat. VII, p. 568 (1817).
Ornismya magæi LESS. Ois. Mouch. p. 194 (1829).
Thaumatias ourissia BP. Consp. I, p. 79 (1850).
Sporadinus maugæi BP. Rev. Mag. Zool. 1854, p. 255.—GOULD, Mon. Troch. V, pl. 349 (1861).—SCL. & SALV. Nom. Avium Neotr. p. 94 (1873).—MULS. Hist. Nat. Ois. Mouch. II, p. 77 (1875).—ELLIOT, Mon. Troch. p. 242 (1878).—CORY, List Bds. W. I. p. 18 (1885).
Trochilus maugei SUNDEV. Oefv. K. Vet. Akad. För. 1869, p. 600.
Chlorestes gertrudis GUNDL. J. f. O. 1874, p. 315.
Chlorolampis gertrudis CAB. J. f. O. 1875, p. 223.
Sporadinus (Marsyas) maugæi MULS. Cat. Ois. Mouch. p. 13 (1875).
Chlorolampis maugæus GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 225 (1878).

SP. CHAR. *Male:*—Entire plumage bright green, the feathers showing a golden tinge when held in the light; throat dark blue, golden-green in some lights; tail dark blue; wings dark brown.

Female:—Underparts dull white; the central feathers of the tail green, the rest grayish-green, with a band of blue near the tip; outer feathers tipped with grayish-white.

Length (skin), 3.35; wing, 2; tail, 1.25; bill, .55.

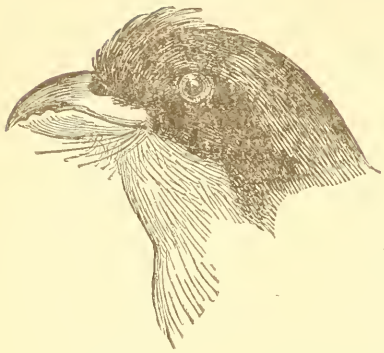
HABITAT. Porto Rico.

FAMILY TROGONIDÆ.

GENUS Priotelus GRAY.

Priotelus GRAY, List. Gen. Bds. 1840.

Priotelus temnurus (TEMM.).



Trogon temnurus TEMM. Pl. Col. No. 326 (1820-39). — VIGORS, Zool. Journ. 1827, p. 443.—GOULD, Mon. Trog. pt. II (1835).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 165 (1840).—GUNDL. Journ. Bost. Soc. Nat. Hist. VI, p. 319 (1857).

Priotelus temnurus BP. Consp. I, p. 150 (1850).—GUNDL. J. f. O. 1856, p. 106.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860). GRAY, Handl. Bds. I, p. 83. (1869) —GUNDL. Repert. Fisico-Nat. Cuba, I, p. 298 (1866); *ib.* J. f. O. 1874, p. 165.

Prionoteles temnurus SCL. & SALV. Nom. Avium Neotr. p. 103 (1873).

Prionotelus temnurus CORY. List Bds. W. I. p. 18 (1885).

SP. CHAR. *Male:*—Top of the head dark blue, purplish on the crown; back bright green, showing a tinge of bluish in some lights; rump showing distinctly bluish green in some lights; throat white, shading into gray on the breast; belly and under tail-coverts bright red: tail-feathers square at the tips, the two central feathers green on the inner webs, bluish on the outer; rest of tail, except the three outer feathers, blue; outer tail-feather having the terminal half dull white, grayish on the outer web; basal half of the inner web of outer tail-feather dark blue; the second and third feathers nearly the same, but having the white on the outer web more restricted; on the third feather the white appears only in two or three spots, but the terminal portion of the feather for an inch or more is entirely dull grayish white; primaries dark brown, the feathers heavily barred with white on the outer web; some of the coverts also banded with white; lower mandible reddish; upper mandible dark brown.

The sexes are similar.

Length, 10; wing, 5; tail, 5; tarsus, .50; bill, .62.

HABITAT. Cuba.

GENUS Temnotrogon BONAP.

Temnotrogon "BONAPARTE, Consp. Voluer. Zygodact. No. 8, p. 14, 1854."

Temnotrogon roseigaster (VIEILL.).

Couroucou à ventre rouge, de Saint Dominique, BUFF. Hist. Nat. Ois. VI, p. 287 1779).

"*Le Couroucou à caleçon rouge, ou Le Couroucou Damioiseaux*, LE VAILL. Nat. Cour. pl. 13, p. 18."

Trogon roseigaster VIEILL. Ency. Méth. III, p. 1358 (1820).—GOULD, Mon. Trog. pl. 20 (1838).—BP. Consp. I, p. 149 (1850).—SALLÉ, P. Z. S. 1857, p. 235.— BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 95 (1866).

Trogon rhodogaster TEMM. Pl. Col. III (1820–39).

Temnotrogon roseigaster BP. Consp. Volucr. Zygodact. No. 8, p. 14 (1854).—GRAY, Handl. Bds. I, p. 83 (1869).— CORY, Bds. Haiti & San Domingo, p. 95 (1885).— List Bds. W. I. p. 18 (1885).

Temnotrogon rhodogaster SCL. & SALV. Nom. Avium Neotr. p. 103 (1873).

SP. CHAR. *Male:*—Top of the head, back, and upper tail-coverts lustrous golden green; breast and throat gray, showing a tinge of green when held in the light; belly and under tail-coverts bright red; primaries and secondaries dark slaty brown, the outer webs barred with white; wing-coverts green, narrowly barred with white; under surface of tail dark blue, the three outer feathers having the outer webs and tips white, but showing a spot of black on the outer web near the tip; the inner webs of the two central tail-feathers dull greenish, extending nearly to the tip where it is replaced by the blue of the outer web; bill yellow; feet brownish.

The sexes are similar.

Length, 11; wing, 5.40; tail, 6.40; tarsus, .65; bill, .65.

HABITAT. San Domingo.

FAMILY CUCULLIDÆ.

GENUS Crotophaga LINN.

Crotophaga LINNÆUS, Syst. Nat. I, p. 154 (1766).

Crotophaga ani LINN.

Crotophaga ani LINN. Syst. Nat. I, p. 154 (1766).—GOSSE, Bds. Jam. p. 282 (1847).—BP. Consp. I, p. 99 (1850).—SALLÉ, P. Z. S. 1857, p. 234.—CASSIN, Pr. Acad. Nat. Sci. Phila. 1860, p. 377.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—ALBRECHT, J. f. O. 1862, p. 203.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 153.—BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 95 (1866).—SUNDEV. Oefv. K. Vet. Akad. För. 1869, p. 600.—SCL. & SALV. Nom. Avium Neotr. p. 107 (1873).—BD. BWR. & RIDG. Hist. N. Am. Bds. II, p. 488 (1874).—GUNDL. J. f. O. 1874, p. 159; *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 233 (1878).—LAWR. Pr. U. S. Nat. Mus. I, pp. 193, 273, 487 (1878).

—ALLEN, Bull. Nutt. Orn. Club, V, p. 169 (1880).—LISTER, Ibis, 1880, p. 41.—CORY, Bds Bahama I. p. 118 (1880); *ib.* Bull. Nutt. Orn. Club. VI, p. 154 (1881); *ib.* Bds. Haiti & San Domingo, p. 100 (1885); *ib.* List Bds. W. I. p. 18 (1885).—RIDGW. Pr. U. S. Nat. Mus. VII. p. 172 (1884).

Crotophaga minor LESS. Tr. Orn. p. 130 (1831).

Crotophaga lævirostris? BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 105 (1859).

Crotophaga rugirostris CUNIL. Repert. Fisico-Nat. Cuba, I, p. 296 (1866).

SP. CHAR. *Male*:—Upper mandible much curved; culmen rising above the head, flattened to a sharp edge; nostrils situated in the middle of the lower half of the upper mandible; general color black, showing bluish reflections; the feathers of the head, neck, breast, and upper part of the back with metallic bronze borders; iris brown.

The sexes are similar.

Length, 12.25; wing, 6.20; tail, 7.50; tarsus, 1.50; bill, 1.10.

HABITAT. West Indies.

GENUS Saurothera VIEILL.

Saurothera VIEILLOT, "Analyse, p. 36, 1816."

Saurothera vetula (LINN.).

Cuculus vetula LINN. Syst. Nat. I, p. 169 (1766).

Saurothera jamaicensis LAFR. Rev. Zool. 1847, p. 354.

Saurothera vetula GOSSE, Bds. Jam. p. 273 (1847).—BP. Consp. I, p. 96 (1850).—ALBRECHT, J. f. O. 1862, 202.—SCL. Cat. Am. Bds. p. 323 (1862).—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 283.—GRAY, Handl. Bds. II, p. 208 (1870).—SCL. & SALV. Nom. Avium Neotr. p. 107 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 109 (1881).—CORY, List Bds. W. I. p. 18 (1885).

Coccygus vetula SCHLEG. Mus. Pays-Bas, I, p. 39 (1864).

SP. CHAR.—Top of head, including the eye, dark olive brown; lighter brown on the nape; rest of back and wings light gray; throat white; breast and belly tinged with pale rufous; under surface of wings chestnut rufous; primaries chestnut rufous, tipped with pale olive; tail feathers, except central ones, bluish black, tipped with white.

The sexes are similar.

Length, 14.50; wing, 5; tail, 7.50; tarsus, 1; bill, 1.50.

HABITAT. Jamaica.

Saurothera dominicensis LAFR.

Saurothera dominicensis LAFR. Rev. Zool. 1847, p. 355.—SALLE, P. Z. S. 1857, p. 234.—BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 95 (1866).—

GRAY, Handl. Bds. II, p. 208 (1870).—SCL. & SALV. Nom. Avium Neotr. p. 107 (1873).—CORY, Bull. Nutt. Orn. Club, VI, p. 154 (1881); *ib.* Bds. Haiti & San Domingo. p. 98 (1885); *ib.* List Bds. W. I. p. 18 (1885)—TRISTRAM, Ibis, 1884, p. 168.

Coccygus dominicensis SCHLEG. Mus. Pays-Bas, I, p. 40 (1864).

SP. CHAR. *Male:*—Head, back, breast, and two central tail-feathers slate color, darkest on the head, where it sometimes shows a faint brownish tinge, and lightest, being almost ashy on the breast; wing-coverts and tertiaries slaty gray, showing pale greenish reflections when held in the light; primaries and some of the secondaries bright rufous brown, the first two edged with dull greenish, and all tipped with the same color; outer tail-feathers bluish, tipped with white, becoming dull olive at the base; two central tail-feathers tipped with black; throat and abdomen pale rufous; a bare space encircling the eye bright red; bill and legs slaty.

The sexes are similar.

Length, 15.50; wing, 5.50; tail, 9; tarsus, 1.40; bill, 1.60.

HABITAT. Haiti and San Domingo.

Saurothera vieilloti BP.

Saurothera vetula VIEILL. Nouv. Dict. XXXII, p. 348.—LAFR. Rev. Zool. 1847, p. 357.

Saurothera vieilloti BP. Consp. I, p. 97 (1850).—SCL. Cat. Am. Bds. p. 324 (1862). SUNDEV. Oefv. K. Vet. Akad. För. 1869, p. 599.—GRAY, Handl. Bds. II, p. 208 (1870).—SCL. & SALV. Nom. Avium Neotr. p. 107 (1873).—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 230 (1878).—CORY, List Bds. W. I p. 18 (1885).

Saurothera vieilloti var. *rufescens* BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 256 (1866).

SP. CHAR.—Entire upper surface pale olive brown; throat dull white, shading into gray on the breast; belly and under tail-coverts chestnut brown; tail olive, tipped with black, and narrowly edged on the tip with white; primaries having the outer webs pale olive, and and heavily marked with rufous on the terminal portions of the inner webs; secondaries showing distinctly olive green.

The sexes are similar.

Length, 16; wing, 5; tail, 8.50; tarsus, 1.05: bill, 1.40.

HABITAT. Porto Rico.

Saurothera merlini D'ORB.

Saurothera merlini D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 152 (1840).—BP. Consp. I, p. 97 (1850).—CAB. J. f. O. 1856, p. 104.—GUNDL. Journ. Bost. Soc. Nat. Hist. VI, p. 319 (1857).—BREWER,

Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 296 (1866); *ib.* J. f. O. 1874, p. 158.—GRAY, Handl. Bds. II, p. 208 (1870).—SCL. & SALV. Nom. Avium Neotr. p. 107 (1873).—CORY, List Bds. W. I. p. 18 (1885).

Coccygus merlini SCHLEG. Mus. Pays-Bas, I, p. 40 (1864).

SP. CHAR.—Very large. The head and back brown, with a tinge of olive, brightest on the head and rump; throat dull ashy white, shading distinctly ashy on the breast; rest of underparts pale chestnut brown; under surface of wings rufous; pale chestnut on the under coverts; primaries dark chestnut rufous, tipped with olive, showing slight metallic reflections; wing-coverts pale olive; two central tail-feathers dull olive, showing a brownish tinge on basal portions; rest of tail-feathers dull olive, showing a brownish tinge slightly on the inner webs, and having a subterminal band of black, tipped with white.

Length, 21; wing, 7.25; tail, 12; tarsus, 1.50; bill, 2.

HABITAT. Cuba.

Saurothera bahamensis BRYANT.

Saurothera vetula BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 106 (1859).

Saurothera bahamensis BRYANT, Pr. Bost. Soc. Nat. Hist. IX, p. 280 (1864).—CORY, Bds. Bahama I. p. 116 (1880); *ib.* List Bds. W. I. p. 18 (1885).

SP. CHAR. *Male:*—Above pale olive, showing slight greenish reflections; throat and breast dull grayish white; belly and crissum tawny; primaries mostly rufous; tail-feathers, except the two central ones, tipped with pale brownish white; legs slaty blue; soles of the feet yellow; eyelids vermillion red; upper mandible brownish, shading into slate color at the base; iris brown.

The sexes are similar.

Length, 18; wings, 6.25; tail, 9.50; tarsus, 1.50; bill, 1.80.

HABITAT. Bahamas.

GENUS Coccyzus VIEILL.

Coccyzus VIEILLOT, Analyse, p. 28, 1816.

Coccyzus americanus (LINN.).

Cuculus americanus LINN. Syst. Nat. I, p. 170 (1766).

Coccyzus carolinensis D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 150 (1840).

Coccyzus americanus GOSSE, Bds. Jam. p. 279 (1847).—A. & E. NEWTON, Ibis, 1859, p. 146 (St. Croix).—BREWER, Pr. Bost. Soc. Nat. Hist.

VII, p. 307 (1860) (Cuba).—Albrecht, J. f. O. 1862, p. 202 (Jamaica).—Gundl. Repert. Fisico-Nat. Cuba, I, p. 295 (1866).—Scl. P. Z. S. 1866, p. 166 (Jamaica).—Gundl. J. f. O. 1874, p. 156 (Cuba); *ib.* Anal. Soc. Esp. Hist. VII, p. 233 (1878) (Porto Rico).—Cory, Bds. Bahama I. p. 117 (1880).—A. & E. Newton, Handb. Jamaica, p. 109 (1881).

Coccyzus dominicus March, Pr. Acad. Nat. Sci. Phila. 1863, p. 154 (Jamaica).

Coccyzus bairdi Scl. P. Z. S. 1864, p. 120 (Jamaica).

Coccyzus americanus Cab. J. f. O. 1856, p. 104 (Cuba).—Cory, List Bds. W. I. p. 19 (1885).

This species occurs in the Bahama Islands, Cuba, Jamaica, and Porto Rico. It has also been recorded from St. Croix.

Coccyzus minor (Gmel.).

Cuculus minor Gmel. Syst. Nat. I, p. 411 (1788).

Cuculus seniculus Lath. Ind. Orn. I, p. 219 (1790).

Coccyzus seniculus Vieill. Ency. Méth. p. 1346.—Gosse, Bds. Jam. p. 281 (1847).—Bp. Consp. I. p. 111 (1850).—Sallé, P. Z. S. 1857, p. 234.—Newton, Ibis, 1859, p. 150.—Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—Cassin, Pr. Acad. Nat. Sci. Phila. 1860, p. 377.—Cab. & Hein. Mus. Hein. IV, p. 78 (1861).—Albrecht, J. f. O. 1862, p. 202.—Scl. P. Z. S. 1864, p. 121.—Pelz. Orn. Bras. p. 273 (1871).

Coccyzus helviventris Cab. in Schomb. Guian. III, p. 714 (1848).

Coccygus minor Baird, Bds. N. Am. p. 78 (1858).—Cab. J. f. O. 1856, p. 104.—Gundl. Repert. Fisico-Nat. Cuba I, p. 295 (1866).—Bryant, Pr. Bost. Soc. Nat. Hist. XI, p. 96 (1866).—Bd. Bwr. & Ridgw. Hist. N. Am. Bds. II, p. 482 (1874).—Allen, Bull. Nutt. Orn. Club, V, p. 169 (1880); *ib.* Cory, VI, p. 154 (1881); *ib.* Bds. Haiti & San Domingo, p. 101 (1885); *ib.* List Bds. W. I. p. 19 (1885).

Coccyzus nesiotes Cab. & Hein. Mus. Hein. IV, p. 78 (1861).—Taylor, Ibis, 1864, p. 121.

Coccyzus dominicus Scl. Cat. Am. Bds. p. 323 (1862).

Coccygus seniculus Schleg. Mus. Pays-Bas. I, p. 38 (1864).

Coccystes seniculus Sundev. Oefv. K. Vet. Akad. För. 1869, p. 599.

Coccyzus minor Léot. Ois. Trin. p. 353.—Bryant, Pr. Bost. Soc. Nat. Hist. X, p. 255 (1866).—Scl. P. Z. S. 1870, p. 166.—Gundl. J. f. O. 1874, p. 157; *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 231 (1878).—Lawr. Pr. U. S. Nat. Mus. I, pp. 62, 193, 234, 487 (1878).—Cory, Bds. Bahama I. p. 117 (1880).—A. & E. Newton, Handb. Jamaica, p. 109 (1881).—Ridgw. Pr. U. S. Nat. Mus. VII, p. 172 (1884).

Sp. Char. *Male:*—Above grayish olive, tinged with ash on the head; underparts yellowish brown, darkest on the thighs, and becoming pale on the throat; a streak of dark brown behind the eye, passing

under it; quills and under wing-coverts yellowish brown; outer tail-feathers black, tipped with white, and showing slight bronze reflections; the others lighter, except the central ones, tipped with white; under mandibles yellow, except at the tip.

The sexes are similar.

Length, 11.80; wing, 5.20; tail, 6.50; tarsus, 1.08; bill, .90.

HABITAT. Bahamas and Antilles.

Coccyzus erythrophthalmus (WILS.).

Cuculus erythrophthalmus WILSON, Am. Orn. IV, p. 16 (1811).

Coccyzus erythrophthalmus LEMB. Aves Cuba, p. 73 (1850).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 295 (1866); *ib.* J. f. O. 1874, p. 157 (Cuba).

Coccyzus erythrophthalmus CAB. J. f. O. 1856, p. 104 (Cuba).—CORY, List Bds. W. I. p. 19 (1885).

Accidental in Cuba.

GENUS Hyetornis SCL.

Hyetornis SCLATER, Cat. Am. Bds. p. 321 (1862).

Hyetornis pluvialis (GMEL.).

Cuculus pluvialis GMEL. Syst. Nat. I, p. 411 (1788).

Piaya cinnamomeiventris LAFR. Rev. Zool. 1846. p. 321.—DES MURS. Icon. Orn. pl. 65.

Piaya pluvialis GOSSE, Bds. Jam. p. 277 (1847).—BP. Consp. I, p. 111 (1850).—SCL. P. Z. S. 1861, p. 79.—ALBRECHT. J. f. O. 1862, p. 203.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 283.

Hyetornis pluvialis SCL. Cat. Am. Bds. p. 321 (1862).—SCL. & SALV. Nom. Avium Neotr. p, 108 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 109 (1881).—CORY, List Bds. W. I. p. 19 (1885).

Hyetormantis pluvialis CAB. J. f. O. 1862, p. 203.

Coccygus pluvialis SCHLEG. Mus. Pays-Bas. I, p. 39 (1864).

Hyetornis pluvianus GRAY, Handl. Bds. II, p. 212 (1870).

SP. CHAR.—Top of the head smoky brown; rest of the upper surface olive; throat dull white showing a tinge of chestnut; rest of underparts dark chestnut brown; under wing-coverts rufous chestnut; primaries dull olive brown, with a slight metallic tinge of green on the inner webs of the primaries and distinctly perceptible on the secondaries; tail dull black, showing a slight purplish tinge; all of the tail-feathers tipped with white.

The sexes are similar.

Length, 18; wing, 7; tail 10; tarsus, 1.60; bill, 1.25.

HABITAT. Jamaica.

Bucco cayennensis Sallé (P. Z. S. 1857, p. 234), from San Domingo, it is impossible to identify, as Sallé gives no description, and the genus does not occur in the West Indies.

FAMILY ALCEDINIDÆ.

GENUS Ceryle BOIE.

Ceryle BOIE, Isis, 1828, p. 316.

Ceryle stictipennis LAWR.

Ceryle torquata LAWR. Pr. U. S. Nat. Mus. I, pp. 459, 487 (1878).—CORY, List Bds. W. I. p. 19 (1885).

Ceryle stictipennis LAWR. Pr. U. S. Nat. Mus. VIII, p. 623 (1885).

"*Male.*—The upper plumage is ashy-blue, with a broad, pure white band across the hind neck, connecting with the white of the throat; lores black; a spot of white anterior to the eye, and another of the same color below it; the upper tail-coverts are colored like the back, and are barred on both webs with white; the two middle tail feathers are also colored like the back; the shafts are black, bordered narrowly on each side with deep black; they are conspicuously marked with triangular-shaped white spots on the middle of each web, these are nine in number on each side; the other tail feathers are black, with their outer edges colored like the back, and having pure white spots rounded in form on each web, those on the inner webs are much the largest; all the tail feathers are tipped with white; the quills are black, largely white on their inner webs and marked on the primaries with quadrate white spots on the outer ones, rather far apart; the secondaries have also small white spots on their outer webs, and on the inner webs large round spots, the outer webs are margined with ashy-blue; the tertiaries are largely ash-blue on their outer webs, spotted and barred with white, the inner webs are brownish-black and marked with large spots of white; the wing-coverts are like the back in color, the larger ones are sparsely marked with small white spots; the scapulars are narrowly barred with white; the under wing-coverts are white, largely intermixed with cinnamon color; the throat is white; the lower part of the neck, the breast, and the abdomen are of a very dark cinnamon color; the lower part of the abdomen, the flanks, crissum and under tail-coverts are white, closely spotted and barred with rather dull ashy-blue; the tarsi and toes are dark brown; the bill is black, with the basal half of the under mandible yellow.

"Length, fresh, 17 inches; wing, $7\frac{3}{4}$; tail, $5\frac{1}{2}$; bill, 3.

"*Habitat.*—Guadeloupe, West Indies. Type in my collection.

"*Female.*—The color above is similar to that of the male, but it has the entire back and wings marked sparsely with small white spots; in the markings on the head, wings, and tail they are much alike; it has the white throat and band on the hind neck as in the male; across the lower part of the throat and upper part of the breast there is a broad band of ashy-blue, minutely freckled with white; this band is bordered narrowly below with white; the entire under plumage besides, and the under wing-coverts are deep cinnamon.

"Length (skin), 17½ inches; wing, 8; tail, 5¾; bill, 3.

"The type of the female is in the National Museum, Washington, to which it was sent from Guadeloupe by Mr. L. Guesde." (LAWR., l. c., orig. descr.)

It has always been supposed that *Ceryle torquata* did not differ from the Guadeloupe species, but Mr. Lawrence considers the West Indian bird as new and has described it as above. The greatest difference seems to be the white spotting of the wings and back, and the rufous marking of the under wing-coverts. Were it not for the isolated position where it occurs it would represent a variety of *C. torquata*, but as we have no record of its occurrence elsewhere in the West Indies, and as it is claimed to be resident in Guadeloupe, intergradation seems hardly probable, still the Lesser Antilles are not, as yet, so well known as to justify us in saying *C. torquata* does not occur elsewhere in the West Indies.

Ceryle alcyon (LINN.).

Alcedo alcyon LINN. Syst. Nat. I, p. 180 (1766).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 130 (1840).—BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 255 (1866) (Porto Rico).—SUNDEV. Oefv. K. Vet. Akad. För. 1869, p. 585 (St. Bartholomew); *ib.* p. 600 (Porto Rico).

Ceryle alcyon GOSSE, Bds. Jam. p. 81 (1847).—SALLÉ, P. Z. S. 1857, p. 233 (San Domingo).—A. & E. NEWTON, Ibis, 1859, p. 67 (St. Croix).—BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 108 (1859) (Bahamas).—BREWER, *ib.* p. 306 (1860) (Cuba).—SCL. P. Z. S. 1861, p. 77 (Jamaica).—ALBRECHT, J. f. O. 1862, p. 199 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 292 (1866).—LAWR. Pr. U. S. Nat. Mus. I, p. 62 (1878) (Dominica); *ib.* p. 193 (St. Vincent); *ib.* p. 292 (Grenada); *ib.* p. 359 (Martinique); *ib.* p. 459 (Guadeloupe).—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 218 (1878) (Porto Rico).—SCL. P. Z. S. 1879, p. 765 (Montserrat).—ALLEN, Bull.

Nutt. Orn. Club, V, p. 169 (1880) (Santa Lucia).—CORY, Bds. Bahama I. p. 115 (1880).—A. & E. NEWTON, Handb. Jamaica, p. 109 (1881).—CORY, Bull. Nutt. Orn. Club, VI, p. 153 (1881) (Haiti).—GRISDALE, Ibis, 1882, p. 486 (Montserrat).—CORY, Bds. Haiti & San Domingo, p. 103 (1885); *ib.* List Bds, W. I. p. 19 (1885).

Alcedo (*Ceryle*) *alcyon* BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 95 (1866) (San Domingo).

Common throughout the West Indies.

FAMILY TODIDÆ.

GENUS Todus LINN.

Todus BRISSON, Orn. IV, p. 528 (1760).— LINNÆUS, Syst. Nat. I, p. 198 (1766).

Todus viridis LINN.

Todus viridis LINN. Syst. Nat, I, p. 178 (1766).—GOSSE, Bds. Jam. p. 72 (1847).—DENNEY, P. Z. S. 1847, p. 38.—Bp. Consp. I, p. 182 (1850).—ALBRECHT, J. f. O. 1862, p. 199. — SCL. Cat. Am. Bds. p. 263 (1862).—SCL. & SALV. Nom. Avium Neotr. p. 103 (1873).—SHARPE, Ibis, 1874, p. 349.—A. & E. NEWTON, Handb. Jamaica, p. 109 (1881).—CORY, List Bds. W. I. p. 19 (1885).

SP. CHAR.—Entire upper surface bright grass-green; throat bright red, the feathers showing delicate tippings of white when held in the light; a narrow stripe of white on each side of the throat, becoming grayish as it reaches the breast; breast dull white, strongly tinged with green; belly very pale yellow; a patch of pink on the sides of the body; primaries dark brown, narrowly edged with green; the inner primaries and secondaries having nearly the entire outer web green; under surface of tail brownish; upper surface of tail green.

The sexes are similar.

Length, 4.60; wing, 1.80; tail, 1.40; tarsus, .45; bill, .62.

HABITAT. Jamaica.

Todus angustirostris LAFR.

Todus angustirostris LAFR. Rev. Zool. 1851, p. 478.—SALLÉ, P. Z. S. 1857, p. 233.—BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 91 (1866).—SHARPE, Ibis, 1874, p. 352.—CORY, Bds. Haiti & San Domingo, p. 107 (1885); *ib.* List Bds. W. I. p. 19 (1885).

SP. CHAR. *Male:*—Above bright green; throat dark crimson; the feathers slightly touched with white; underparts white; flanks pinkish; under wing- and tail-coverts pale yellow; a line of white extending from the base of the mandible, separating the colors of the head and throat, becoming grayish as it reaches the sides of the neck; entire upper mandible and terminal half of lower mandible dark brown; legs black.

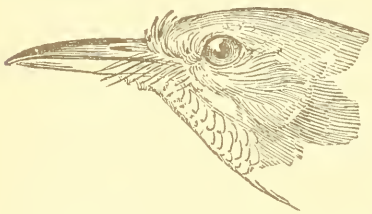
The sexes are similar.

Length, 4; wing, 1.90; tail, 1.50; tarsus, .45; bill, .60; width of bill at middle, .12.

HABITAT. San Domingo.

Todus subulatus GOULD.

Le Todier de St. Dominque, "BUFF. Pl. Enl. p. 585, figs. 1, 2 (1783)."
Todus viridis "VIEILL. Nouv. Dict. XXXIV, p. 184, pl. 29, fig. 4 (1819)."



Todus subulatus GOULD (Fig. sine descr.).—GRAY & MITCH. Gen. Bds. I, p. 63 pl. 22 (1847).—BP. Consp. I, p. 182 (1850).—GRAY, Handl. Bds. I, p. 79 (1869).—SHARPE, Ibis, 1874, p. 351.—TRISTRAM, Ibis, 1884, p. 168.—CORY, Bds. Haiti & San Domingo, p. 105 (1885); *ib.* List Bds. W. I. p. 19 (1885).

Todus dominicensis LAFR. Rev. Zool. 1847, p. 331.—SALLÉ, P. Z. S. 1857, p. 233.—BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 91 (1866).—SCL. & SALV. Nom. Avium Neotr. p. 103 (1873).—CORY, Bull. Nutt. Orn. Club, VI, p. 154 (1881).

SP. CHAR. *Male:*—Above bright green; throat crimson red, the feathers faintly tipped with white; underparts dull yellowish, the feathers edged with pale red on the basal portions, the color only slightly showing on the surface, and giving the chest and belly the appearance of being pale yellowish, faintly streaked with red; flanks pale pinkish red; wings dark brown, edged with green; tail green; crissum and under tail-coverts pale yellow; a line of dull white extending from the base of the mandible, separating the green of the head from the red of the throat; upper mandible dark brown; the tip of lower mandible dull brown.

The sexes are similar.

Length, 4.35; wing, 2.05; tail, 1.60; tarsus, .60; bill, .70; width of bill at middle, .20.

HABITAT. Haiti and San Domingo.

Todus pulcherrimus SHARPE.

Todus pulcherrimus SHARPE, Ibis, 1874, p. 353, pl. xiii, f. 3.—CORY, List Bds. W. I. p. 19 (1885).

"Above bluish-green, rather tinged with olive on the lower back, the wing-coverts showing a very strongly pronounced blue shade; quills blackish, bordered narrowly with light green, shading off into bluish towards the tips of the secondaries; tail dull greenish, with narrow margins of bluish green; forehead lighter and rather more olive-green than the back, and tinged with orange near the base of the beak; lores tinged with orange; sides of face yellowish green; sides of neck dull rufous; chin white; throat bright carmine, with silvery white margins to most of the feathers; rest of under surface with a light crimson blush, varied on the breast with white oval spots to the feathers, producing an ocellated appearance, the crimson colour brightest on the flanks, shading off into ochraceous buff on the sides of the vent; on each side of the upper breast a patch of greenish; under wing-coverts ochraceous buff, the outermost smaller coverts washed with pale carmine; upper mandible blackish, lower one yellowish; feet black.

"Total length, 3.5 inches; culmen, 0.85; wing, 1.9; tail, 1.4; tarsus, 0.65.

"HAB. Jamaica?

"This new species comes nearest to *T. subulatus* of S. Domingo, having, like that species, the white ocellations on the breast; but it differs from that bird and all other members of the genus by its brilliant coloration below, and by its being bluish green above.

"The type is in the British Museum." (SHARPE, l. c., orig. descr.)

Todus hypochondriacus BRYANT.

Todus viridis DESM. H. N. Tang. pl. 67.—VIEILL. Gal. Ois. I. pl. 124 (1825).

Todus mexicanus LESS. Ann. Soc. Nat. XI, p. 167.—LAFR. Rev. Zool. 1847, p. 333.—BP. Consp. I, p. 182 (1850).—BAIRD, Ibis, 1867, p. 260.

Todus hypochondriacus BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 250 (1866). — SUNDEV. Oefv. K. Vet. Akad. För. 1869, p. 598. — SCL. & SALV. Nom. Avium Neotr. p. 103 (1873).—SHARPE, Ibis, 1874, p. 354.—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 219 (1878).—CORY, List Bds. W. I. p. 19 (1885).

SP. CHAR.—Entire upper plumage bright green; throat red, the feathers showing faint edgings of white when held in the light; a narrow stripe of white down the sides of the throat; cheeks green; breast grayish, becoming white on the belly; sides of the body and under tail-coverts yellow; a faint bluish tinge is perceptible on the carpus; under surface of tail dull brown; upper surface green.

Length, 4.75; wing, 1.75; tail, 1.10; tarsus, .50; bill, .60.

HABITAT. Porto Rico.

General appearance of *T. viridis*, but lacking the broad pink patch on the sides of the body. Some specimens show a slight pinkish tinge.

Todus multicolor GOULD.

Todus multicolor GOULD, Icon. Av. pl. 2 (1837).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 132 (1840).—BP. Consp. I, p. 182 (1850).—CAB. J. f. O. 1856, p. 101.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—GUNDL. J. f. O. 1871, p. 288; *ib.* 1874, p. 146.—SCL. & SALV. Nom. Avium Neotr. p. 103 (1873).—SHARPE, Ibis, 1874, p. 352.—CORY, List Bds. W. I. p. 19 (1885).

Todus portoricensis LESS. Ann. Soc. Nat. XI, p. 167 (1838).—GRAY, Gen. Bds. I, p. 63 (1844).—LAFR. Rev. Zool. 1847, p. 332.—LEMB. Aves Cuba, p. 131 (1850).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).

SP. CHAR.—Entire upper plumage grass-green; a tinge of yellow in front of the eye; cheeks pale blue; throat red, showing the faint whitish tippings when held in the light; breast dull white, becoming gray on the belly; sides of the body pale pink; under tail-coverts yellowish green; under surface of tail pale brown, showing a slight bluish reflection; upper surface of tail green.

Length, 3.80; wing, 1.50; tail, 1.25; tarsus, .50; bill, .55.

HABITAT. Cuba.

FAMILY PICIDÆ.

GENUS Picumnus TEMM.

Picumnus TEMMINCK, Nouv. Rec. de Pl. Col. d'Ois. IV, 1820–39.

Picumnus micromegas SUNDEV.

Chloronerpes passerinus SALLÉ, P. Z. S. 1857, p. 234.

Picus (Chloronerpes) passerinus BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 96 (1866).

Picumnus micromegas SUNDEV. Consp. Avi. Picin. p. 95 (1866).—BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 96 (1866).— TRISTRAM, Ibis, 1884, p. 167.

Picumnus lawrencei CORY, Bull. Nutt. Orn. Club, VI, p. 129 (1881); *ib.* Bds. Haiti & San Domingo, p. 109 (1885); *ib.* List Bds. W. I. p. 19 (1885).

SP. CHAR. *Male:*—Tail soft, composed of ten feathers; general plumage above olive green; forehead showing a tinge of black; top of the head bright yellow, cut by a band of red, again becoming yellow at the base; underparts yellowish, palest on the throat, mottled and streaked with brown feathers; on the sides of the neck marked with dull white, nearly joining above, forming an imperfect collar; wing-coverts and outer webs of primaries and secondaries olive green; inner webs brown, becoming pale on the edges; bill, legs, and feet dark slate color; iris reddish brown.

The adult female differs from the male in wanting the red band on the head.

Length, 5.10; wing, 2.75; tail, 1.85; tarsus, .70; bill, .62.

HABITAT. Haiti and San Domingo.

GENUS Campephilus GRAY.

Campephilus GRAY, List Gen. Bds. p. 54 (1840).

Campephilus principalis bairdi.

Campephilus principalis Cab. J. f. O. 1856, p. 102.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).

Campephilus bairdii CASSIN, Pr. Acad. Nat. Sci. Phila. 1863, p. 322.—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 293 (1866);—*ib.* J. f. O. 1874, p. 148.

Campephilus principalis var. *bairdi* BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 496 (1874).

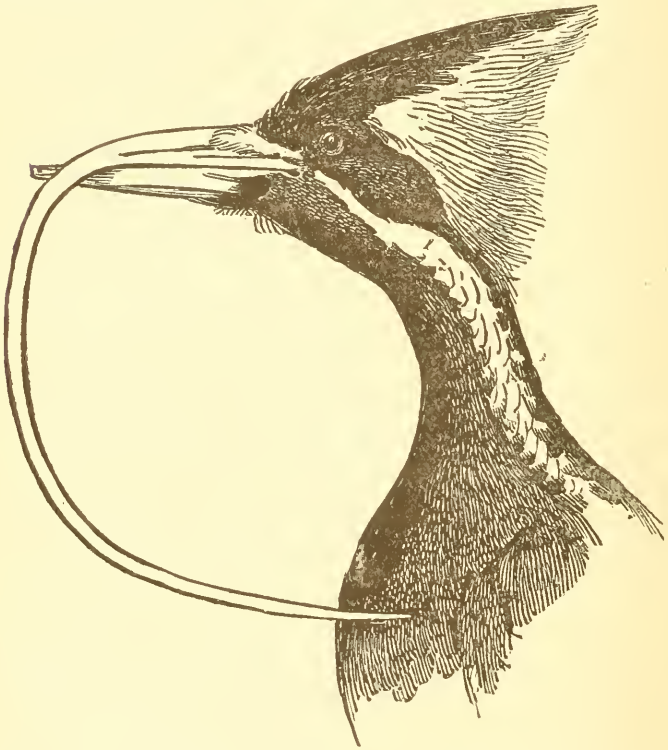
Campephilis principalis bairdi CORY, List Bds. W. I. p. 19 (1885).

"Much resembling *C. principalis*, but smaller and with the black anterior feathers of the crest larger than those succeeding, which are scarlet. White longitudinal line on the neck reaching quite to the base of the bill. In *C. principalis* the scarlet plumes of the crest are the longer, and the line on the neck does not extend to the base of the bill, both of which characters are very accurately shown in Audubon's plates B. of Am. pl. 66, and oct. ed. IV, pl. 256. Colors of all other parts in the present bird are the same as those of *C. principalis.*

"Total length about 18½ inches, wing, 9¼, tail, 6¾ inches." (CASSIN, l. c., orig. descr.)

HABITAT. Cuba.

I have now before me eighteen examples of *C. principalis* and two of *C. bairdi*, and have examined three other specimens of the latter bird. In none of the Cuban birds does the white cheek stripe quite reach the bill and in most of them it lacks a quarter of an inch or more. Some examples of *C. principalis* show the white stripe *nearly* as long as the Cuban form. The length of this stripe is quite variable in the series from Florida. The "black anterior feathers of the crest" do not appear to be a constant character, as two examples of *C. principalis* from Florida show it as much as any Cuban specimens which I have seen.



In Dr. Gundlach's private museum at Ingenio Fermina, Cuba, I had the pleasure of seeing a most curious *C. bairdi*, which might well be called an ornithological monstrosity. The bird was perfect in every respect with the exception of the upper mandible, which had grown to the enormous length of nearly twelve inches, curving downward and passing the body on the left side, as shown in the accompanying figure.

GENUS Dryobates BOIE.

Dryobates BOIE, Isis, 1826, p. 977.

Dryobates villosus insularis.

Picus villosus BRYANT. Pr. Bost. Soc. Nat. Hist. VII, p. 106 (1859).—CORY, Bds. Bahama I. p. 120 (1880).
Picus insularis MAYN. The Nat. in Florida, I, No. 4 (1885).
Picus villosus insularis CORY, List Bds. W. I. p. 19 (1885).

SP. CHAR. *Male:*—Above black, with a white band down the middle of the back, finely lined with black; all the quills, middle and larger wing-coverts with numerous spots of white; crown black; a patch over the eye, and a stripe from the mandible to the nape white; a black stripe from the eye, passing through the cheeks, over the nape, and joining the black of the back; a scarlet crescent around the base of the skull, joining the white superciliary stripe; underparts ashy, with the sides mottled and striped with black; two outer tail-feathers white, edged and tipped with pale brown; third black, with a patch of pale brown upon the outer web, the others black.

Female:—The scarlet crescent wanting, replaced by white.

Length, 7.25; wing, 4.20; tail, 3; tarsus, .70; bill, 1.

HABITAT. Northern Bahama Islands.

This form differs from *P. villosus* in the greater extent of white in front of the eye, the black streaks on the sides of the breast, and black shaft-lines on the white feathers of the back.

GENUS Sphyrapicus BAIRD.

Sphyrapicus BAIRD, Bds. N. A. p. 101 (1858).

Sphyrapicus varius (LINN.).

Picus varius LINN. Syst. Nat. I, p. 176 (1766).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 141 (1840).—GOSSE, Bds. Jam. p. 270 (1847).—CAB. J. f. O. 1856, p. 102 (Cuba).—NEWTON, Ibis, 1859, p. 308 (St. Croix).—BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 106 (1859) (Bahamas); *ib.* BREWER, p. 396 (1860) (Cuba).—ALBRECHT, J. f. O. 1862, p. 202 (Jamaica).—MARCH. Pr. Acad. Nat. Sci. Phila. 1863, p. 284 (Jamaica).
Sphyrapicus varius GUNDL. Repert. Fisico-Nat. Cuba, I, p. 294 (1866); *ib.* J. f. O. 1874, p. 150 (Cuba).—CORY, Bds. Bahama I. p. 121 (1880).—A. & E. NEWTON, Handb. Jamaica, p. 109 (1881).—CORY, List Bds. W. I. p. 20 (1885).
Picus (*Sphyropicus*) *varius* BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 65 (1867) (Bahamas).

Recorded from the Bahama Islands, Jamaica, Cuba, and St. Croix.

GENUS **Xiphidiopicus** BONAP.

Xiphidiopicus BONAPARTE, "Consp. Vol. Zygodact. p. 11 (1854)."

Xiphidiopicus percussus (TEMM.).

Picus percussus TEMM. Pl. Col. pp. 390, 424 (1820–39).—VIGORS, Zool Journ. III, p. 444 (1827).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 143 (1840).—THIENE. J. f. O. 1857, p. 153.

Dendrobates percussus GRAY, Gen. Bds. II, p. 437 (1844–49).

Chloropicus percussus MALH. Mém. Acad. Metz, 1848–49, p. 352.

Picus ruppellii WAGL. Syst. Av. sp. 29 (1827).

Chloronerpes percussus BP. Consp. I, p. 118 (1850).—CAB. J. f. O. 1856, p. 102.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 294 (1866); *ib.* J. f. O. 1874, p. 151.

Xiphidiopicus percussus BP. Consp. Vol. Zygodact. p. 11 (1854).—SCL. Cat. Am. Bds. p. 339 (1862).—GRAY. Handl. Bds. II, p. 199 (1870).—SCL. & SALV. Nom. Avium Neotr. p. 100 (1873).—Cory, List Bds. W. I. p. 20 (1885).

SP. CHAR.—Forehead dull white, extending in a superciliary stripe down the sides of the head to the neck; top of the head bright red; a narrow stripe of smoky black passing from the eye down the sides of the neck; a narrow stripe of black on the centre of the throat from the chin, succeeded on the lower throat and upper breast by a broad patch of red; sides of throat dull white; back and upper surface of wings yellowish green; middle portion of breast pale yellow; feathers on the sides of the body barred with smoky black and white, showing a tinge of yellow; primaries dark brown, blotched with dull white on the edges of the webs; inner primaries and secondaries heavily edged with pale green on the outer web; two central tail-feathers dull black, showing a silvery tinge when held in the light; under surface of the tail showing feathers with narrow alternate bands of gray and pale brown.

The female differs from the male in having the top of the head black, the feathers showing narrow shaft lines of white; the red restricted to the base of the skull.

Length, 9; wing, 5; tail, 3.50; tarsus, .80; bill, .90.

HABITAT. Cuba.

GENUS **Melanerpes** SWAINS.

Melanerpes SWAINSON, F. B. A. II. 1831.

Melanerpes portoricensis (DAUD.).

Picus portoricensis DAUD. Ann. du Mus. II, p. 383, pl. 51 (1803).—BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 256 (1866).—SUNDEV. Oefv. K. Vet. Akad. För. 1869, p. 599.

Picus rubidicollis VIEILL. Ois. Am. Sept. II, p. 63, pl. 117 (1807).—TEMM. Cat. Syst. p. 210 (1807).

Melanerpes rubidicollis GRAY, Gen Bds. II, p. 444 (1844-49).—BP. Consp. I, p. 115 (1850).

Melanerpes portoricensis A. & E. NEWTON, Ibis, 1859, p. 377.—CASSIN, Pr. Acad. Nat. Sci. Phila. 1860, p. 377.—SCL. Cat. Am. Birds, p. 34; (1862).—TAYLOR, Ibis, 1864, p. 170.—SCL. & SALV. Nom. Avium Neotr. p. 100 (1873).—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 227 (1878).—CORY, List Bds. W. I. p. 20 (1865).

Melampicus portoricensis MALH. Mon. Pic. II, p. 205 (1862).

Asyndesmus portoricensis GRAY, Handl. Bds. II, p. 201 (1870).

SP. CHAR. *Male:*—Entire upper surface black with greenish reflections; forehead dull white, reaching and nearly encircling the eye; throat, breast, and underparts dull crimson red, mixed with brownish on the sides of the body; a spot of white near the carpus; rump white; wings and tail brownish black.

Length, 7.50; wing, 5; tail, 3; tarsus, .90; bill, 1.

HABITAT. Porto Rico and St. Thomas.

Melanerpes l'herminieri (LESS.).

Picus hermanieri LESS. Traité Orn. p, 228 (1831).

Melampicus hermanieri MALH. Mém. Acad. Metz, 1848-49, p. 365.

Linnæipicus herminieri MALH. N. Class. Pic. p. 53 (1850).—BP. Consp. Vol. Zygodact. sp. 255 (1854).

Melanerpes hermanieri BP. Consp. I, p. 515 (1850).—REICH. Handb. p. 381 (1853).

Linneopicus hermanieri GRAY, Cat. Gen. Bds. p. 93 (1855).

Melanerpes l'herminieri SCL. & SALV. Nom. Avium Neotr. p. 100 (1873).—LAWR. Pr. U. S. Nat. Mus. I, p. 459 (1878).—CORY, List Bds. W. I. p. 20 (1885).

SP. CHAR. *Male:*—General plumage black, showing a steel blue gloss on the back when held in the light; feathers on the breast tinged with dull red; a faint reddish tinge is perceptible on the forehead.

Female:—Similar to the male, perhaps smaller, and lacks the tinge of red on the forehead, although the reddish tinge on the forehead of the male is possibly not constant.

Length (skin), 10; wing, 5.50; tail, 4; tarsus, 1; bill, 1.25.

HABITAT. Guadeloupe.

GENUS Centurus SWAINS.

Centurus SWAINSON. Class. Birds, II, p. 310, 1837.

Centurus striatus (MÜLL.).

Picus dominicensis, striatus, "BRISS. Orn. IV, p. 65, pl. 4, fig. 2 (1760) (♂ ad)."

Picus dominicensis "BRISS. t. c. pl. 3, fig. 2 (♀ ad)."

Le Pic rayé de St. Dominique "BRISS. Orn. IV, p. 65, pl. 4, fig. 1 (1760) (♂ ad).

Picus striatus MÜLL. Syst. Nat. Suppl. (1766).—GMEL. Syst. Nat. I, p. 427 (1788).—CUV. Rég. An. I, p. 451 (1829).—BRYANT. Pr. Bost. Soc. Nat. Hist. XI, p. 96 (1866).

Centurus striatus GRAY, Gen. Bds. II, p. 442 (1844-49).—BP. Consp. I, p. 119 (1850).—SALLÉ. P. Z. S. 1857, p. 234.—SCL. & SALV. Nom. Avium Neotr. p. 100 (1873).—RIDGW. Pr. U. S. Nat. Mus. IV, p. 117 (1881).—CORY, Bull. Nutt. Orn. Club, VI. p. 154 (1881); *ib.* Bds. Haiti & San Domingo, p. 111 (1885); *ib.* List Bds. W. I. p. 20 (1885).—TRISTRAM, Ibis, 1884, p. 168.

Zebrapicus striatus MALH. Mon. Pic. II, p. 231 (1862).

SP. CHAR. *Male:*—Underparts yellowish green, showing a tinge of brownish olive on the breast, and gray on the throat; forehead and sides of the head gray; a patch of bright crimson red extending from the forehead to the nape, covering nearly the entire top of the head; rump crimson red; back alternately banded with black and yellowish green; upper surface of wings having the appearance of the back, except that they are alternately banded with black and yellow; upper surface of tail dark brown; bill and feet dark slate color.

Female:—Top of head black; the nape showing bright crimson red, which encroaches slightly upon the back of the head; rest as in the male.

Length, 9; wing, 4.60; tail, 3.60; tarsus, .90; bill, 1.20.

HABITAT. Haiti and San Domingo.

Centurus radiolatus (WAGL.).

Picus varius medius jamaicensis RAY, Syn. Av. p. 181, No. 11.

Picus jamaicensis EDW. Gleanings, Pl. 244 (♂ ad.).

Pic varié Femelle de la Jamaique BUFF. Pl. Enl. p. 597 (♂ ad.).

Picus carolinus, part. LINN. Syst. Nat. I, p. 175 (1766).

Picus radiolatus WAGL. Syst. Av. No. 59 (1827); *ib.* Isis, 1829, p. 572.

Centurus radiolatus GOSSE, Bds. Jam. p. 271 (1847).—BP. Consp. I, p. 118 (1850).—REICH. Handb. p. 409 (1854).—SCL. Cat. Am. Bds. p. 343 (1862).—ALBRECHT, J. f. O. 1862, p. 203.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 284.—SCL. & SALV. Nom. Avium Neotr. p.

100 (1873).—RIDGW. Pr. U. S. Nat. Mus. IV, p. 111 (1881).—A. & E. NEWTON, Handb. Jamaica, p. 109 (1881).—CORY, List Bds. W. I. p. 20 (1885).

Zebrapicus radiolatus MALH. Mon. Pic. II. p. 237 (1862).

SP. CHAR. *Male:*—Forehead and throat dull white; crown bright red; breast smoke gray, becoming yellowish-olive on the underparts; a faint reddish tinge near the vent, sometimes lacking; back black, the feathers delicately barred with dull white; rump black, barred with white; tail black, the inner webs of the two central feathers delicately barred with white; wings black, showing numerous dottings of white on the secondaries and the basal portions of the outer webs of some of the primaries.

Female:—Forehead white; top of the head smoky-brown; a band of red at the base of the skull; otherwise similar to the male.

Length, 10.50; wing, 5; tail, 3.50; tarsus, .90; bill, 1.25.

HABITAT. Jamaica.

Centurus superciliaris (TEMM.).

Picus superciliaris TEMM. Pl. Col. IV, p. 433 (1820–39).—CUV. Rég. An. p. 451 (1829).—WAGL. Isis, 1829, p. 515.—LESS. Traité d'Orn. p. 227 (1831).—THIENE. J. f. O. 1857, p. 153.

Colaptes superciliaris VIG. Zool. Journ. III. p. 445 (1827).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 146 (1840).

Colaptes superciliosus GRAY, Gen. Bds. II, p. 446 (1844–49).

Centurus superciliaris BP. Consp. I, p. 118 (1850).—REICH. Handb. p. 408 (1854).—GUNDL. J. f. O. 1856, p. 103; *ib.* 1874, p. 152.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—SCL. Cat. Am. Bds. p. 342 (1862).—SCL. & SALV. Nom. Avium Neotr. p. 101 (1873).—RIDGW. Pr. U. S. Nat. Mus. IV, p. 115 (1881).—CORY, List Bds. W. I. p. 20 (1885).

Zebrapicus superciliaris MALH. Mém. Acad. Metz, 1848–49, p. 361.

SP. CHAR. *Male:*—Forehead white, showing a faint tinge of orange red at base of the upper mandible; crown deep red, the color extending to the nape; a patch of black over and back of the eye; rest of head and throat dull grayish white; breast yellowish olive, becoming distinctly yellowish on the belly; a patch of deep red on the middle of the belly; back and wings heavily banded with black and white, showing a faint yellowish tinge on the back; primaries dark brown, narrowly tipped with white on the fifth and sixth; the two central tail-feathers heavily banded with black and white; the outer tail-feathers banded with black and white near the tip; rest of tail-feathers faintly tipped with white; bill black; feet black.

Female:—Similar to the male, but having top of the head white

succeeded by a band of dull black, which is in turn replaced by red on the base of the skull, extending to the nape.

Length, 11.50; wing, 5.80; tail, 4; tarsus, 1; bill, 1.50.

HABITAT. Cuba.

GENUS **Colaptes** SWAINS.

Colaptes SWAINSON, Zool. Journ. III, p. 353, Dec. 1827.

Colaptes chrysocaulosus GUNDL.

Colaptes chrysocaulosus GUNDL. Ann. N. Y. Lyc. Nat. Hist. VI, p. 273 (1858).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—ALBRECHT, J. f. O. 1861, p. 210.—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 294 (1866); *ib.* J. f. O. 1874, p. 153.—SCL. & SALV. Nom. Avium Neotr. p. 101 (1873).—CORY, List Bds. W. I. p. 20 (1885).

Colaptes auratus CAB. J. f. O. 1856, p. 103.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).

Colaptes auratus var. *chrysocaulosus* BD. BWR. & RIDGW. Hist. N. Am. Bds. II, p. 575 (1874).

SP. CHAR. *Male:*—Top of head gray; a nuchal patch of red; a malar stripe of black; sides of the head and throat pale chocolate; a patch of black on the breast; underparts dull yellowish white, heavily spotted with black; upper surface pale chocolate brown, banded with black; upper surface of primaries brown, having the shafts bright yellow; under surface of wings pale yellow; tail dark brown, some of the feathers showing narrow bands on the edges; under surface of tail yellow, feathers tipped with black; bill black and feet dark brown.

The female resembles the male, but differs from it in lacking the black malar stripe, having the throat and sides of the head entirely pale chocolate brown.

Length, 10.50; wing, 5.40; tail, 4.50; tarsus, .80; bill, 1.20.

HABITAT. Cuba.

GENUS **Nesoceleus** SCL. & SALV.

Nesoceleus SCLATER & SALVIN, App. Nom. Avium Neotr. p. 155 (1873).

Nesoceleus fernandinæ (VIG.).

Colaptes fernandinæ VIG. Zool. Journ. 1827, p. 445.—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 148 (1840).—CAB. J. f. O. 1856, p. 104.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 295 (1866); *ib.* J. f. O. 1874, p. 155.—GRAY, Handl. Bds. II, p. 202 (1870).

Picus fernandinæ WAGL. Isis, 1829, p. 517.

Colaptes fernandina Denny, P. Z. S. 1847, p. 39.
Geopicus fernandinæ Malh. Mém. Acad. Metz, 1848–49, p. 359; *ib.* Mon. Pic. II, p. 273 (1862).
Colaptes fernandiæ Reich. Handb. Orn. p. 415, No. 975 (1854).
Nesoceleus fernandinæ Scl. & Salv. Nom. Avium Neotr. p. 101 (1873).—Cory, List Bds. W. I. p. 20 (1885).

Sp. Char. *Male:*—Top of the head pale yellowish brown, each feather having a central stripe of dark brown, giving the head a delicate striped appearance; a space around the eye, extending beyond the ear-coverts, pale rufous brown; a stripe of black passes from the under mandible down the sides of the throat; chin and throat black, the feathers edged with yellowish white; rest of plumage having the feathers banded with yellow and dark brown, brightest on the underparts; under wing-coverts pale yellow, somewhat marked with brownish; wings and tail dark brown, thickly banded with yellow; under surface of wings and tail showing the shafts of the feathers clear pale yellow, the shafts being brown on the upper surface.

Female:—Similar to the male, but having the head and cheeks browner, and lacking the black stripe on the side of the throat.

Length (skin), 12; wing, 6. 25; tail, 5; tarsus, 1; bill, 1.60.

Habitat. Cuba.

(*To be continued.*)

DESCRIPTIONS OF NEW SPECIES OF BIRDS FROM THE WEST INDIES.

BY CHARLES B. CORY.

Thryothorus guadeloupensis, sp. nov.

Sp. Char.—Upper parts dark brown, showing darkest on the head; wing-coverts tipped with rufous brown; primaries and secondaries dark brown, the outer webs mottled with reddish brown, showing pale indistinct bands on some of the inner secondaries; entire underparts tawny brown; under tail-coverts tawny, heavily marked with dark brown; bill yellowish brown, under mandible quite pale; legs and feet pale; iris yellow.

The tail of the specimen above described is lacking.

Length, —; wing, 1.95; tarsus, .78; bill, .75.

Habitat. Grand Terre, Guadeloupe, West Indies.

Loxigilla richardsoni, sp. nov.

SP. CHAR.—Entire plumage dull black; *no* trace of rufous brown on the throat or above the eye; under wing-coverts dull black; inner web of outer tail-feather dark brown; legs and feet apparently pale.

Length (skin), 5.10; wing, 2.85; tail, 1.95; tarsus, .95; bill, .50.

HABITAT. Mountains of Santa Lucia, West Indies.

The bird here described was procured in Santa Lucia by Mr. W. E. Richardson (for whom I have named it), with a lot of skins from a native living in the interior of the island. Mr. Richardson claims to have seen the bird alive, but was unable to obtain other specimens, as at the time of his visit to the island all shooting was prohibited by the authorities.

Loxigilla barbadensis, sp. nov.

SP. CHAR. *Male.*—General appearance of the female of *L. noctis*. Upper parts dull olive brown; underparts ashy brown, palest on the throat; under tail-coverts pale rufous brown; a faint tinge of reddish brown is sometimes perceptible on the throat and in front of the eye, but is not constant, and is lacking in several specimens. Quills brown, the outer webs edged with brownish-white; wing-coverts edged with red-brown; tail olive brown, showing numerous nearly obsolete bands when held in the light; bill and feet dark brown, the latter nearly black.

Length (skin), 5; wing, 2.75; tail, 2; tarsus, .75; bill, .45.

The sexes are apparently similar.

HABITAT. Barbadoes, West Indies.

I do not know of a black *Loxigilla* having been taken in Barbadoes. Mr. Richardson procured a good series from that island and claims that black examples do not exist there.

DESCRIPTION OF A NEW GENUS OF TYRANNIDÆ FROM SANTO DOMINGO.

BY ROBERT RIDGWAY.

Lawrencia, gen. nov.

GEN. CHAR.—Wing very much rounded, the first quill shortest, the second quill not longer than secondaries, and fifth and sixth longest; longest primaries exceeding secondaries by less than the distance from tip of second to that of longest quill; distance from tip of first quill to that of

the longest considerably greater than the length of the tarsus. Tarsus long (about twice the length of the exposed culmen), the posterior face, on both sides, "booted." Bill small, much depressed, triangular, the lateral outlines slightly concave; distinctly notched, the rictal bristles strong; length of bill from nostril about equal to its width at base. Tail nearly as long as the wing, slightly rounded. Color olive above, browner on remiges and rectrices, grayer on head, the wing-coverts with two whitish bands; lower parts whitish, tinged with sulphur-yellow, laterally and posteriorly.

Type, *Empidonax nanus* Lawrence.

The type of this genus is exceedingly different in structure from any of the species of *Empidonax*, as shown by the above diagnosis. In general coloration, it resembles some of the species of *Empidonax*, and also some of the Vireones, especially *V. bellii*.

This new form is dedicated to Mr. George N. Lawrence, of New York City, America's veteran ornithologist, as a slight token of esteem, and also in recognition of his important services to Neotropical ornithology.

ON THE AVI-FAUNA OF PINAL COUNTY, WITH REMARKS ON SOME BIRDS OF PIMA AND GILA COUNTIES, ARIZONA.

BY W. E. D. SCOTT.

With annotations by J. A. Allen.

(*Continued from page 258.*)

II.

1. **Podilymbus podiceps.** PIED-BILLED GREBE.—The only specimens of this species that I am aware of occurring in the region under discussion, were taken by Mr. Herbert Brown of Tucson, near that place on the 18th of February, 1886. They are two in number; one an immature bird and the other almost in full plumage.

2. **Urinator lumme.** RED-THROATED LOON.—A Papago Indian brought into the reservation near Tucson on December 20, 1884, an individual of this species. It was apparently exhausted, and falling in the grass was unable to rise again. It proved to be an immature male, and is now in the collection of Mr. Herbert Brown. This is the only record I am aware of from this immediate vicinity.

3. **Merganser americanus.** AMERICAN MERGANSER.—During a visit to the San Pedro River, January 27 to 29 inclusive, of the present year, I noted this species as rare. One female was taken and three males seen. Mr. Brown has no records from about Tucson, nor have I ever noticed it in the markets of that place.

4. **Lophodytes cucullatus.** HOODED MERGANSER.—An immature female, taken by Mr. Brown near Tucson, on December 5, 1885, is the only record of the species that I know of.

5. **Anas boschas.** MALLARD.—This is one of the commonest Ducks about Tucson, during late fall and winter, leaving early in the spring, Mr. Brown tells me. I found it not uncommon, on the San Pedro on March 1, 1885, and it was one of the most abundant Ducks at the same point, January 27 to 29 of the present year.

6. **Anas strepera.** GADWALL.—The only occurrence of this species that has come under my observation is a female, secured by Mr. Brown, near Tucson, on December 20, 1886, and now in that gentleman's collection.

7. **Anas americana.** BALDPATE.—This species was not uncommon on the San Pedro River, in small flocks, never exceeding six individuals, during a visit to that point from January 27 to 29 inclusive, 1886.

8. **Anas carolinensis.** GREEN-WINGED TEAL.—"Abundant about Tucson at times during the winter; notably so, from about February 5 to 19 of the present year." (MS. note from Mr. Herbert Brown.) It was apparently rare on the San Pedro during my visits of the past winter.

9. **Anas discors.** BLUE-WINGED TEAL.—"Uncommon about Tucson" (*Herbert Brown*). A few were observed during visits made to the San Pedro River during the past winter.

10. **Anas cyanoptera.** CINNAMON TEAL.—"A common migrant, coming early in the fall and remaining till late in the spring, about Tucson" (*Herbert Brown*). I have not observed it on the San Pedro or on the Gila at Riverside, but have taken it about Tucson as late as April 26, when the birds were still in flocks.

11. **Spatula clypeata.** SHOVELLER.—"Rather common about Tucson in winter" (*Herbert Brown*). Two representatives that I have seen in the markets and in Mr. Brown's collection are in immature plumage, or were beginning, late in February, to assume the breeding plumage.

12. **Dafila acuta.** PINTAIL.—This species I noticed as not uncommon on the San Pedro in early March, 1885.

13. **Aythya americana.** REDHEAD.—"Common about Tucson in winter" (*Herbert Brown*). Very common in flocks of from six to ten individuals on the San Pedro River at a point about ten miles from American Flag, from January 27 to 29 inclusive, 1886.

14. **Aythya vallisneria.** CANVAS BACK.—A small flock of about eight individuals noted on the San Pedro on January 28, 1886, and a female taken. I have no absolute record from about Tucson.

15. **Aythya marila nearctica.** AMERICAN SCAUP DUCK.—Rather common on the San Pedro in winter.

16. **Aythya affinis.** LESSER SCAUP DUCK.—A few seen on the San Pedro during late January of the past winter.

17. **Charitonetta albeola.** BUFFLE-HEAD.—"Uncommon about Tucson in winter. My only record is an adult male taken December 5, 1885" (*Herbert Brown*). I took a female, a bird of the year, on the San Pedro, January 27, 1886, which is my only record of the species from this region.

18. **Erismatura rubida.** RUDDY DUCK.—Not uncommon at times about Tucson, but generally in immature plumage. Mr. Brown has similar records of its occurrence, but I have not met with it on the San Pedro.

19. **Branta canadensis.** CANADA GOOSE.—I saw a small flock of three in a pond near the San Pedro on January 27, 1886. This is my only record.

20. **Plegadis autumnalis.** GLOSSY IBIS.—Mr. Brown says that this species is not infrequent about the bottom lands of the Santa Cruz, near Tucson, both in the fall and spring. I have never met with it myself, but have seen a skin of this species in Mr. Brown's collection.

21. **Plegadis guarauna.** WHITE-FACED GLOSSY IBIS.—A much more common species than the last, according to my own experience. I have found it common in May, in the vicinity of Tucson, in pairs, and in flocks of from six to fifteen individuals. At such times the birds were tame and unsuspicious.

22. **Tantalus loculator.** WOOD IBIS.—Rather common on the Gila and San Pedro Rivers for most of the year, and particularly so in the later months of the summer.

23. **Botaurus lentiginosus.** AMERICAN BITTERN.—Mr. Brown tells me this bird is rare about Tucson. He has but one specimen in his collection. The only personal record of it is a male taken on the San Pedro River, January 29, 1886.

24. **Ardea herodias.** GREAT BLUE HERON.—A resident species, and rather common. My records are from Riverside, Mineral Creek, and the San Pedro region, and also about Tucson. The Mineral Creek record is perhaps of special interest, as the bird was taken far from water and had evidently been feeding on a species of land lizard. This was in September, 1882. They were abundant on the San Pedro in late January of this year.

25. **Ardea egretta.** AMERICAN EGRET.—Rather common about Tucson in May, which is the only season that I have records of its occurrence, nor have I met with it in other localities.

26. **Ardea candidissima.** SNOWY HERON.—Only noted about Tucson in May, where I saw a flock of five and took one.

27. **Ardea virescens.** GREEN HERON.—"Rather rare about Tucson" (*Herbert Brown*). Also noticed by the same gentleman on the Salt River, near Tempe. I have no other records of its occurrence.

28. **Nycticorax nycticorax nævius.** BLACK-CROWNED NIGHT HERON.—"Rather rare about Tucson" (*Herbert Brown*). I have many records of it on the Santa Cruz in May, 1883.

29. **Rallus virginianus.** VIRGINIA RAIL. I saw a Rail on the San

Pedro on January 28, 1886, which I was unable to procure, but feel very positive as to its identity as above.*

30. [Porzana carolina. CAROLINA RAIL.—Mr. Herbert Brown has kindly sent me an example of this species taken by him at Tucson, April 18, 1886.—J. A. A.]

31. Galinula galeata. FLORIDA GALLINULE.—"Not uncommon about Tucson" (*Herbert Brown*). I have records of it as being rare on the San Pedro in late January.

32. Fulica americana. Common, except during summer, wherever suitable localities present themselves. I have notes of its occurrence about Tucson in late May and early June in pairs. Abundant on the San Pedro in late January, 1886.

33. Phalaropus tricolor. WILSON'S PHALAROPE.—Common during the migrations about Tucson. Mr. Brown's experience agrees with the above statement.

34. Recurvirostra americana. AMERICAN AVOCET.—"Common at times during the fall migration, near Tucson" (*Herbert Brown*).

35. Gallinago delicata. WILSON'S SNIPE.—Common about Tucson during the migrations, and a few spend the winter both at this point and in the San Pedro River region, indicated on the accompanying map.

36. Tringa minutilla. LEAST SANDPIPER.—Mr. Brown says this species is common about Tucson during the spring and fall migrations, and I have also met with it at these times.

37. Tringa alpina pacifica. RED-BACKED SANDPIPER.—I saw flocks of this species and took representatives, during the latter part of April, 1883, near Tucson.

38. Ereunetes occidentalis. WESTERN SANDPIPER.—Spring and fall, but most common in the former season, about Tucson.

39. (?) Limosa fedoa. MARBLED GODWIT.—A Godwit noted on January 27, 1886, on the San Pedro River, I can refer only to this species. I was very close to the bird, which was alighted, but unfortunately had no means of procuring it.

40. Totanus melanoleucus. GREATER YELLOW-LEGS.—My only record of this species was given me by Mr. Brown, who took two male birds of the year near Tucson on October 29, 1884. These are now in his collection.

41. Totanus solitarius. SOLITARY SANDPIPER.—Not uncommon about Tucson during the migrations. This is the mutual experience of Mr. Brown and myself.

42. Actitis macularia. SPOTTED SANDPIPER.—Occasional about Tucson in spring.

43. Numenius longirostris. LONG-BILLED CURLEW. "Not common during the migrations about Tucson" (*H. Brown*). I have no records in regard to the species.

44. Ægialitis vocifera. KILLDEER.—Common about Tucson and on

* [I am indebted to Mr. Herbert Brown for a specimen of this species, an adult male, taken by him at Tucson, April 11, 1886.—J. A. A.]

the San Pedro, in spring and fall, and breeds in small numbers in the San Pedro region.

45. **Ægialitis semipalmata.** SEMIPALMATED PLOVER.—This species is doubtless common in the migrations about Tucson, where my only record was made in April, 1883, when I saw many.

46. **Colinus ridgwayi.** MASKED BOB-WHITE.—My personal experience with the 'Bob-white' of Arizona is limited to having seen and carefully examined all the material that Mr. Herbert Brown has acquired, which, I believe, with the exception of the type of the male bird taken by Mr. F. Stephens in Sonora, and described by Mr. Brewster, embraces *all* of the known specimens of the species now in collections.

Perhaps it may as well be said in this connection, though I believe it is already recorded, that previous to Mr. Stephens's Sonora trip, Mr. Brown had become aware that there was a 'Bob-white' in Arizona, and that he showed me two mummies of the species during the spring preceding Mr. Stephens's Sonora trip. And finally all of the United States records of the species, so far as I am aware, are due to the careful study and work of Mr. Brown. Up to the early part of the present year this record only embraced five individuals, but during the early spring past, Mr. Brown procured not only a considerable series of male birds, that must in certain features modify the original description from the single bird obtained by Mr. Stephens, but also a series of the female bird, which was up to that time unknown, save from a somewhat imperfect bird that had not been dissected. These birds have all been forwarded to Mr. Allen for more complete description than we have had up to the present time. For a description, so far as known, of the habits of the species I refer to Mr. Brown's paper published in 'Forest and Stream' (Vol. XXV, p. 445, December 31, 1885).*

47. **Callipepla squamata.** SCALED PARTRIDGE.—This Quail is almost as abundant on the dry mesas of the San Pedro slope of the Santa Catalina Mountains, up to an altitude of 3500 feet, as its congener *C. gambeli*. It affects a more open country, however, though I have often seen flocks of Quails where the two species were represented in about equal proportions. In other localities as, for instance, near the Cottonwood Spring, indicated on the map, it is very abundant in larger flocks, almost to the exclusion of *C. gambeli*. The little valley to the west of the Santa Catalina range, where the road passes down from Old Camp Grant to Tucson, is inhabited by both species in great abundance, and here, too, I have seen flocks composed of the two associating apparently on the most friendly terms. About Riverside the birds were very rare, nor did I find them at Mineral Creek, but just about Florence they are common, and near Tucson they are frequently to be met with. South of Tucson, in the neighborhood of Quijotoa and on the plains about Barboquivari, Mr. Brown says the species is particularly abundant.

* [I have in press a special paper on this species, illustrated with colored figures of both male and female. It will appear in the 'Bulletin' of the American Museum of Natural History, Vol. I, No. 7, article XVI. A brief reference to Mr. Brown's specimens may be found in the last number of, The Auk' (Vol. III, p. 275).—J. A. A.]

The birds remain in flocks in the region of the Catalina Mountains, where I live, till as late as the middle of April, when they gradually break up into pairs to assume their family duties.

The only nest I have found was at an altitude of about 3500 feet. This was on the 20th of May, 1885. There was little attempt at a nest, but simply a slight depression in the sand, lined with a few coarse grasses under a small cat-claw bush. There were eleven nearly fresh eggs that so closely resemble those described by Dr. Coues (see Birds of the Northwest, p. 443) that further description is unnecessary. It may be well in this connection to call attention to the extreme thickness of the shells of the eggs.

I have taken birds of the year in the same locality that had not yet completed the moult from the nest plumage as late as the middle of October, so that probably several broods are raised.

The birds, whether in flocks or singly, are shy and difficult to approach, and it is no easy matter to overtake a flock when they are alarmed and begin to run as a method of escape, instead of flying. The call-note of the birds after being scattered reminds one in a way of the note of the Guinea Fowl, only that it is not so loud nor continuous.

[Mr. Scott's collection includes a series of 41 specimens, collected chiefly in March and November. The sexes are about equally represented, and show no sexual difference in plumage, the lightest and the darkest birds being respectively just as often males as females. The fall specimens have a little stronger tinge of buff below and are a little darker generally than those taken in the spring. Mr. Sennett's series of 80 specimens of *C. squamata castanogastris*, taken in Southern Texas (Lower Rio Grande), average much darker, and are further distinguished by the abdominal chestnut patch, which forms the chief diagnostic feature of this form. The darker Arizona specimens, however, can not in some instances, be distinguished from some of the Texas specimens. In other words, were the labels removed, it would be impossible to give their origin, or to refer them to one race rather than to the other. Yet the Texas series compared side by side as a whole with the Arizona series contrasts strongly with the latter, through the deeper tone of all the colors, regardless of the distinctive abdominal patch and stronger rufous suffusion below.—J. A. A.]

48. **Callipepla gambeli.** GAMBEL'S PARTRIDGE.—Gambel's Quail is so commonly distributed throughout the entire region here considered, below an altitude of 5000 feet, that a few words as to breeding time and certain seasonal movements will suffice. In the winter months it rarely ranges above 4000 feet in the Catalina region, but during the warmer portion of the year many pairs range as high as 5000 feet, though the point in altitude where it is most abundant at all times is fully 1500 feet lower. It is common, too, in the immediate vicinity of streams, a point where I have never met with *C. squamata*. By the middle of April, on the San Pedro slope of the Catalina mountains, most of the birds are paired, and breeding has fairly begun, though I have data of flocks seen as late as April 13. About Tucson the breeding season

begins from three weeks to a month earlier. I have taken birds late in October that still were moulting from the nest plumage.

49. **Cyrtonyx montezumæ.** MASSENA PARTRIDGE.—This partridge I found rather commonly in the evergreen oak region of the Pinal Mountains, near the head of Mineral Creek. Also in about the same abundance and in the same localities on the San Pedro slope of the Catalina Mountains, ranging up as high as 5700 feet, and as low as 4000 feet throughout the year. It is generally to be met with in small coveys of from six to a dozen birds, and seems to affect points where the coarser bunch grass is most luxuriant. I have not found it breeding, but have taken young about two-thirds grown and still in the nest plumage early in October, in the Catalina Mountains.

Mr. Brown tells me that it is a common species in the oak region of the Santa Rita Mountains, and is generally to be met with in the same region on the mountains southward to the Mexican border.

50. **Meleagris gallopavo mexicana.** MEXICAN TURKEY.—The only records of this species that I have are from the San Pedro River, and the oak and pine region of the Catalina Mountains. The bird seems, from what I can learn, to have already greatly decreased in numbers in most localities, and to have become exterminated in others where it was formerly abundant. In the pine woods of the Catalinas at the highest altitudes it was very common late in November, 1885, though snow covered the ground.

(*To be continued.*)

ADDITIONAL NOTES ON PEALE'S PETREL (*ÆSTRELATA GULARIS*).

BY WILLIAM BREWSTER.

In his description* of the new Alaskan Petrel, *Æstrelata fisheri*, Mr. Ridgway intimates that perhaps I was mistaken in referring an *Æstrelata* taken in Western New York† to *Æ. gularis*, adding that it "seems, judging from the description, to belong rather to *Æ. fisheri*." Through the courtesy of the National Museum the type of *Æ. gularis* has been permitted to make a second journey to Cambridge, this time in company with the type of *Æ. fisheri;* thus these three interesting birds are at length brought together.

* Proc. U. S. Nat. Mus., Vol. V, 1883, pp. 656-658.

† Bull. N. O. C., Vol. IV, April, 1881, pp. 91-97.

After carefully comparing them I am led to the following conclusions: (1) That *Æ. fisheri* Ridgw. is perfectly distinct from *Æ. gularis* Peale. (2) That the New York waif is equally distinct from *Æ. fisheri*. (3) That this New York bird may be also distinct from *Æ. gularis*.

In referring it to *Æ gularis*, I ascribed the difference in color of the two specimens to a difference of age, assuming that the case afforded a fair parallel to that made out by Dr. Coues for the closely related *Æ. mollis*, which, according to the author just named, has several well-defined progressive stages of plumage, from the nearly uniform sooty or fuliginous condition of the young bird, to the ashy-gray and white livery of the adult.

Mr. Ridgway, however, has lately said* that "no fact in ornithology can be more thoroughly established than that, with the possible exception of the Albatrosses, *the Petrels have no distinct progressive stages of plumage*, the young assuming with their first feathers the fully adult livery"; an opinion which seems to be shared by the best European authorities on Procellaridæ.

Granting this to be an established fact—I have no disposition to dispute it—my former theory that the New York bird and Peale's type of *gularis* represent different ages of the same species must be, of course, abandoned. It is still possible to fall back on a theory of dichromatism, and to assume that the *Æstrelatæ*, like certain of the Fulmars, have two phases, a dark or fuliginous, and a light or grayish one. The fact that my bird agrees so closely with Peale's in every structural respect, and that the difference between the two consists chiefly in the absence in my specimen of the sooty wash which overlies most of the plumage of the type, has made me hesitate to discard such an apparently reasonable hypothesis. Indeed, I do not wholly discard it, for I cannot help suspecting that it may turn out to be the real solution of the problem; but having no material by which to either prove or disprove it, I merely call attention to it in passing, and adopt what seems to be the only plain course, viz.: that of naming and describing the New York bird as follows:—

Æstrelata scalaris, nov. sp.—SCALED PETREL.

SP. CHAR. *Adult. Sex—?* (No. 5224, Coll. W. B., Mt. Morris, Livingston Co., New York, April, 1880). Beneath white, immaculate only on

* Proc. U. S. Nat. Mus., Vol. V, 1883, p. 658.

the chin, throat, jugulum, central portion of breast and under tail-coverts;* sides and lower portion of breast finely mottled or vermiculated with grayish-ash; axillars, sides of body, crissum, and anal region with numerous broken, confused, but generally transverse, bars of plumbeous gray; abdomen dark slaty plumbeous, the feathers just perceptibly tipped with gray, giving the darker color a slightly hoary appearance. Above, with the forehead, crown, occiput, back, scapulars, and rump dark bluish-ash, darkest (with a slaty cast) on the rump, occiput, and ends of the longer scapulars; feathers of the forehead rather broadly and conspicuously margined and tipped with white; those of the crown narrowly with grayish-white; those of the occiput essentially plain; feathers of the back, as well as the scapular coverts, broadly tipped with ashy white, giving the plumage of these parts a scaled appearance; tail faded brownish-ash, essentially plain above, even when widely spread, although the outer three pairs of feathers have concealed white spaces mottled with gray on their inner webs, the white being most extended and purest on the outer pair and diminishing so rapidly inward that on the fourth pair it is nearly wanting, and on the central four feathers practically entirely so, these feathers being perfectly plain and uniform on both webs nearly to their bases.

The wings are difficult of description. On their under surfaces the exposed (inner) webs of the primaries and secondaries are ashy-white to within about an inch of their tips, which are light faded brown on both webs. The middle and greater under-coverts are pure white with a silky sheen; the lesser under-coverts blackish slate, forming a narrow dark band, bordered outwardly (or anteriorly) next the body by white, but about midway between the body and the carpal joint spreading over the plumage which lines the edge of the wing beneath, and from this point forward to the ends of the under primary coverts, extending quite to the edge of the wing.

On the upper or outer surface the first primary is dark slaty brown, the tenth pale faded brown with a hoary tinge; the intermediate ones form a perfectly graduated, connecting series, each, beginning with the first, being slightly paler and grayer than the preceding one. The secondaries and tertials are all uniform and rather darker than the darkest primary, but still with obscure hoary on their outer webs. All the primaries and secondaries have pure white spaces on their inner vanes, and basally, for a varying but always short distance, all are white across both vanes. On the outer vane the white comes rather abruptly to an end just below the point reached by the tips of the overlapping primary coverts. On the inner vane it diverges from the shaft a little beyond this point and extends to within about an inch of the extremity of the feather, leaving a gradually widening dusky space next the shaft. On the first primary this white space ends apically in a long, acute point, formed and bounded on three sides by the dark color which extends backward along the inner margin of the inner vane for nearly two inches. On each succeeding feather this dark

* A few of the shorter under tail-coverts have plumbeous spots on bars.

inner margin is shortened until with the sixth it disappears, the white on this feather, and all the remaining ones, ending more or less abruptly and squarely.

The primary coverts are essentially similar to the primaries, but with less white on their inner vanes. The greater, middle, and lesser secondary coverts are concolor with the back (hence, much lighter and bluer than the secondaries), and, like the feathers of the back, each is tipped, as well as margined, with ashy-white, forming narrow but distinct light wing-bands. The anterior edge of the wing, for a space more than an inch in width, is abruptly darker than the adjoining secondary coverts, and rather darker, as well as decidedly more sooty, than the darkest primaries.

There is much dark mottling about the eye, but the lores and a rather broad superciliary strip are pure white. The bill is black; the tarsus dull flesh-color. The basal third of toes, with contained webs, pale straw color; the terminal portion black.

Measurements: Bill (chord of culmen), 1.03 in.; height at base, .46; width, .42; length of nostril tubes to middle of incision, .16; to extremity, .25; tarsus, 1.37; outer toe and claw, 1.65; middle, 1.70; inner, 1.43; wing, 9.88; tail, 3.95; the graduation of the rectrices, .90.

The Petrel just described differs from *Æ. fisheri* in having a stouter, more strongly hooked bill, much shorter nasal tubes, less white on the forehead, crown and wings, the inner two pairs of tail-feathers perfectly plain on both webs, and the outer three pairs with faint sparse mottling on the inner webs only.* From both *fisheri* and *gularis* it differs in having the feathers of the back, as well as the greater and middle wing-coverts, tipped and edged with white, giving the back a scaled appearance, and on the wings forming distinct bands. Neither *fisheri* nor *gularis* shows any trace of white on the back, and neither has anything approaching well defined wing-bands. The nostril tubes in *Æ. scalaris* are apparently shorter and more prominent than the *Æ. gularis*, their superior outline straighter, the ends more squarely cut off and less deeply incised. The tubes in the type of *fisheri* have been apparently mutilated, so that their original shape cannot be safely stated, but they were certainly nearly twice as long as in either *gularis* or *scalaris*.

Despite the wide dissimilarity in coloring, the bird under consideration is clearly nearer related to *Æ. gularis* than to any other known species. Structurally the two appear to be identical (save in respect to the slight, perhaps trifling, difference

* The type of *fisheri* has lost the central pair of tail feathers, but all the others have much white mottling on both webs, giving the upper surface of the tail a conspicuously variegated appearance.

in the nasal tubes just mentioned), and, as already hinted, they may prove to be merely the dark and light extremes of a species subject to dichromatism. If really distinct from each other, as both unmistakably are from *Æ. fisheri*, the three birds furnish a remarkable case, viz.: that of three closely related species, the habits and distribution of which are almost wholly unknown, and each of which is at present represented by only a single specimen. To the species just described it is not even possible to ascribe a provisional habitat, its occurrence in the interior of New York being obviously accidental.

RECENT LITERATURE.

The A. O. U. Code and Check-List of North American Birds.* Few scientific books of recent years have been awaited with as much interest as this 'Check-List' of birds and its accompanying 'Code.' To those interested in systematic ornithology, the work is, of course, of the highest importance, as giving an authoritative settlement—so far as authority can settle anything in science—of the much-vexed questions in bird nomenclature. But to the systematic workers in other departments of Zoölogy, and even to botanists, its interest is scarcely less great.

For we who work in other fields are very willing to recognize the fact that the great questions which underlie all systematic nomenclature must be first met and settled by the ornithologists. The abundance and attractiveness of birds and the ease with which they may be collected and studied have combined to render ornithology one of the best cultivated of all departments of science. In spite of a good deal of amateur work, which, in one way or another, gets published, it is, I think, not too much to say that in all the various matters which make up the ground-work of systematic science—in the discrimination of species and varieties, in the study of the relations of these groups to each other, and to their environment—American ornithology stands at the front of systematic science.

We may, therefore, in the various stages through which our ornithology has passed, or is passing, read the future history of our own branches of science In many regards, the ornithologists are fighting our battles for us, and we may take advantage of the results won by their efforts. Thus the discussions of climatic influences on the characters of species, first serious-

* The Code of Nomenclature | and | Check-List | of | North American Birds | Adopted by the American Ornithologists' Union | being the Report of the Committee of the | Union on Classification and | Nomenclature | — | Zoölogical Nomenclature is a means, not an end, of Zoölogical Science | — | New York | American Ornithologists' Union | 1886. 8vo, pp. viii + 392.

ly taken up by Mr. J. A. Allen in 1871, and which has culminated in the trinomial system of nomenclature, has relieved workers in other fields from the need of urging the same considerations. So soon as our facts are sufficient for us to use the trinomial system, we shall find it ready for our use, perfected in all its details.

Again, the absolute importance of the law of priority has impressed itself on the ornithologists, in spite of themselves, for in past times the ornithologists have been among those who have most sinned against this same law. The efforts of Cassin, Coues, Stejneger, and others to ascertain the facts in regard to old names have shown that no middle ground exists between law and chaos in matters of nomenclature.

It is true, as the authors of the 'Code' have insisted, that "nomenclature is a means and not an end in science." But the experience of ornithologists have shown us that in systematic zoölogy and in zoögeography, this means is one absolutely essential to any end of importance. A system of nomenclature based on common fairness and common sense, and stable, because above the reach of individual whim or choice, is as necessary to success in this kind of work as a sharp scalpel is to good work in anatomy.

So long as no rules superior to the caprice of the individual or the tradition of some museum are recognized, so long is systematic work a mere burlesque, and our schemes of classification anything but a mirror of nature.

But besides the positive advances made by the ornithologists, from which others may profit when the time comes, there is something for us to learn from the results of their less fortunate experiments.

An illustration of this may be taken from the last Check-list of Dr. Coues. This work is in many respects most valuable. In it, however, so much learning and labor has been expended in the mending and remodelling of scientific names, as fairly to bring purism in that regard to *reductio ad absurdam*.

Hence the Committee on the new code, with Dr. Coues at its head, now declares that "a name is only a name, and has no necessary meaning," and therefore no necessarily correct orthography. After this experience, the work of strengthening the lame and halting words is hardly likely to be continued in other fields of science.

Another illustration may be drawn from the excessive multiplication of genera, a stage through which ornithology has naturally passed, and which other sciences, profiting from this experience, may possibly be able to avoid.

The work may be considered from three points of view. First, as a 'Check-List,' representing the present aggregate of our knowledge of North American birds. In this regard, the work seems to the present writer to be altogether admirable, and to leave no ground whatever for adverse criticism.

The 'Code' may be considered first in its adaption to the needs of ornithology. In this respect there is little to criticise. The fact that the

ornithologists have been able to agree upon it, and that they have applied it in detail to the production of a check-list, would show that for them the rules are good and sufficient. There are, in the 'Code,' a few traces of compromise; cases in which the sharpness of some positive ruling is somewhat blunted by exceptions. Some of these doubtless arise from difference of opinion among ornithologists, and others probably from peculiarities in the literature of ornithology. But whether these modifications be unavoidable or not, it must be remembered that no compromise will be binding on future authors, and exceptions, not inherent in the nature of the case, will be more and more ignored.

A serious difficulty with all preceding codes of nomenclature, has been a lack of explicitness in dealing with details. It has been hoped by zoölogists generally, that in this 'Code' all the important difficulties would be fairly met and disposed of in ways which could be followed in other sciences. In other words, we have hoped that this 'Code' would be one for zoölogists and botanists generally and not solely for ornithologists. That such a hope was in the minds of the committee also is evident from the care with which they have worked over and considered all previous codes, as well as from their own explicit statement (page 11): "These rules were considered in their bearing upon Zoölogy at large, as well as upon Ornithology alone; it being obvious that sound principles of nomenclature should be susceptible of general application."

From this broad standpoint, then, should the 'Code' be judged, and any rules or provisions based on compromise of opinions, as well as any arising from special peculiarities of ornithological literature, must be regarded as blemishes on the 'Code.'

Speaking only for himself and for his special line of work, the present writer wishes to express his great satisfaction with the 'Code.' In all its essential features, the 'Code' must commend itself at once to those who have made questions of nomenclature the subject of serious thought, and its rules for the most part need only formulation to secure adoption.

Where so much has been done and so admirably done, any word of criticism is thankless. A few points, however, occur to the writer, viewing this code of rules from the standpoint of his own experience.

The first of these is in regard to the Canon XVII, in so far as this applies to different names given in the same work to the same group.

This Canon reads as follows:

"Canon XVII. Preference between competitive specific names published simultaneously in the same work, or in two works of the same actual or ostensible date (no exact date being ascertainable), is to be decided as follows:—

"1. Of names the equal pertinency of which may be in question, preference shall be given to that which is open to least doubt.

"2. Of names of undoubtedly equal pertinency, (*a*) that founded upon the male is to be preferred to that founded upon the female, (*b*) that founded upon the adult to that on the young, and (*c*) that founded on the nuptial condition to that of the pre- or post-nuptial conditions.

"3. Of names of undoubtedly equal pertinency, and founded upon the same condition of sex, age, or season, that is to be preferred which stands first in the book."

It is certain that clauses 1 and 2 are based on special peculiarities of ornithology rather than on the general needs of zoölogy.

The question of equal pertinency of descriptions is very often a subjective one, and this rule gives room to individual judgment or caprice, which it is the business of the 'Code' to eliminate. As to clause 2, we may notice that in most groups of animals, as in the fishes for example, we cannot discriminate in any such way between males, females, and young, and between the various nuptial and non-nuptial conditions. The clause is evidently for ornithologists alone, and by other naturalists it must be disregarded. Of synonymous names which admit of positive identification, and which are printed in the same book, we shall doubtless continue to use the name which stands first upon the page, without regard to other considerations. I believe that the law of primogeniture is made to apply in the case of twins. The chief aim of the law of priority, like that of the law of primogeniture, is not justice but fixity. The present Canon XVII certainly will not secure fixity. The same remarks apply also to Canon XVIII, in regard to synchronous generic names.

In the cases of Canons XXI and XXIII, some important matters are left a little obscure. It is not stated to what degree, if any, we may be allowed to select the type of a comprehensive genus by (metaphorically) questioning its author as to which species he would have regarded as typical. Nor is it clear whether the results of the application of Canon XXI (the earliest restriction of a genus held to be valid) could be set aside either by the application of the process of elimination (Canon XXIII), or on account of the supposed views of the author of the genus. My own idea is that Canon XXI should be regarded as of superior validity, in case of difference of result being reached by these three processes.

The 'Code' agrees with all others in the rejection of *nomina nuda*, but it differs from some others in regarding a 'typonym' as something more than a bare name, and as therefore worthy of recognition.

In this regard the 'Code' is, justly or not, most likely to receive criticism from workers in other fields. Most other departments of zoölogy have but little to do with 'new genera' defined solely by the specification of a typical species.

These 'typonyms' have been generally discarded as the useless product of lazy or 'literary' naturalists, on the general ground formulated by Professor Cope, that "science is science and not literature," and that its names are meaningless, except as "handles to facts." It is, however, apparently the general feeling of ornithologists that names of this sort are too firmly fixed in their science to be now set aside. The Committee on the 'Code' goes so far as to say (p. 52) that "the mere mention of a type has been found to be often a better index to an author's meaning than is frequently a diagnosis or even a long description."

This may be true; but it is equivalent to saying that if a certain author

will tell us what he is talking about, we can form a better idea of his meaning than we shall have if we listen to his statements. Possibly the line must be drawn somewhere between the 'typonym' and the *nomen nudum*, but it is a pity that science should be obliged to notice either.

Canons XLIV and XLV, requiring absolute identification to secure priority, will offer some difficulties in practice, and it is in this regard that most fluctuations in nomenclature in the future are likely to occur. Absolute identification is often difficult among birds, and in more obscure groups it becomes less and less easy of attainment.

With these slight exceptions, the rules of the 'Code' seem to the present writer above cavil, and they fill the needs of other naturalists quite as well as they do those of ornithologists. With the possible exceptions of Canons XVII and XVIII, which do not seem to him wise, and which in fact he cannot use at all, the entire 'Code' will certainly be adopted by workers in ichthyology. I hope and believe that other branches of science will find these rules equally satisfactory, and that this may soon become in all important respects the Code of nomenclature for zoölogy and botany as well as for American ornithology.—David S. Jordan.

[The preceding review being confined mainly to a critical notice of the 'Code,' the following descriptive remarks are added respecting the 'Check-List.'

The A. O. U. 'Check-List,' compared with previous check-lists of North American birds, presents several distinctive peculiarities, the first of which is the order of arrangement adopted, the present list beginning with the 'lowest' or 'most specialized' forms and ending with the 'highest' or 'most generalized.' This, however, is in accordance with a sound and well-approved principle of classification, which has been for a considerable period carried into effect in other departments of zoölogy, and needs no defense or further explanation.

The second distinctive feature is the introduction of the names of all the higher groups, making the list a classified one, giving due prominence to the various 'rounds of the ladder' in systematic ornithology, from subspecies to 'orders.' Aside from the inverted order of arrangement, there are few departures from the systems of late in vogue in the standard works on North American ornithology.

A third distinctive feature is the introduction of references to the works where the genera, species, and subspecies were first named, and to the works where the names of the species and subspecies as here adopted were first used.

A fourth innovation is the introduction of a brief statement of the geographical range, or 'habitat,' of the species and subspecies, with special reference to their distribution in North America.

The geographical scope of the list is North America north of Mexico, and Greenland, and the peninsula of Lower California, with its dependent islands. This gives a 'hard and fast' geographical line, thus rendering it possible to decide the propriety of including any given species in the list,

on the basis of its actual capture within the prescribed limits. A natural faunal boundary would have been preferable could such have been defined, but with our present imperfect knowledge of the ornithology of the region south of the United States, the adoption of such a line is for the present impracticable—in fact, simply impossible.

Compared with former lists, in respect to the nomenclature adopted, the reduction in the number of genera, and the recognition of subgenera, are features of note. Other changes result from the strict enforcement of the law of priority, in respect not only to genera and species, but also to subspecies. As an outcome of this, many radical changes necessarily resulted. The English names, in some cases, are also changed, through an effort to adopt the most suitable, all things considered; and in the interest of brevity and simplicity only one name is in any case given for a species or subspecies, alternative names being omitted. The concordance of previous check-lists, however, gives a ready clue to either the scientific or vernacular names of any form as designated in each of the four preceding lists.

In the A. O. U. 'Check-List' 768 species are recognized, *plus* 183 subspecies, against 764 species and 160 subspecies in Mr. Ridgway's list of 1880, or a total of 951 names in the former against 924 in the latter, and 888 in Dr. Coues's list of 1882. This gives an apparent increase over Mr. Ridgway's list of 4 species and 27 subspecies (= 31); but the actual increase is 29 species and 45 subspecies (= 74).* In reality, however, some 50 names were eliminated and nearly 80 added. The changes introduced in the names themselves, including the many generic changes, probably affect about one-third of the specific and subspecific names. Twenty-six species and subspecies, not satisfactorily established as North American birds, though previously included in one or more of the earlier check-lists, are removed to a supplementary 'Hypothetical List,' being thus held in abeyance for further information respecting them. A list of the fossil species of North American birds, and a full index, closes the work, of which the 'Code' occupies pp. 1-69, the 'Check-List' proper, pp. 71-347, the 'Hypothetical List,' pp. 349-357, the list of 'Fossil Birds of North America,' pp. 359-367, and the Index, pp. 369-392.—J. A. A.]

Madarász's 'Zeitschrift für Ornithologie.'—The latest numbers of the 'Zeitschrift für die gesammte Ornithologie,' edited at Budapest by Dr. Julius von Madarász, have recently come to hand. Part IV of 1885 contains the first of a series of memoirs by O. Finsch and A. B. Meyer on birds from New Guinea, especially from the Alpine region on the south-eastern slope of the Owen Stanley Range. It treats of the Birds of Paradise (19 species), of which not less than 6 new ones are described, among them types of two new genera, *Astrarchia* and *Paradisornis*, besides the

*The increase over Dr. Coues's list is much greater, in consequence mainly of the addition of the peninsula of Lower California and its dependent islands to the area covered by the new list.

hitherto unknown females of *Parotia lawesii* and *Lophorina minor*, and the likewise unknown male of *Amblyornis subalaris*. Two other species, or subspecies, from other parts of that region are also separated and named. Eight beautifully colored plates illustrate as many species, of gorgeous colors and strange forms.

The first part for 1886 has even a more elegant typographical appearance than the foregoing two volumes. Finch and Meyer's memoir is continued, treating of 69 species, 12 being new, among which are four new *Psittaci*, accompanied by fine illustrations.

We take pleasure in calling the attention of American ornithologists to this Journal, a number of which appears in March, June, September, and December, consequently a month ahead of 'The Auk' and 'The Ibis.' Its character is international, articles in any of the scientific languges being accepted for publication, and equal interest is taken in all the zoögeographical regions of the earth. The contents are varied, and many exceedingly valuable and interesting memoirs have already appeared in it, making it indispensible to the working ornithologist. The price ($5.00) is exceedingly low considering the great number of colored plates; thus volume II contained not less than 22 plates. We are told that the 'Zeitschrift' has only two North American subscribers. It is about time that the ornithologists of our country give up their exclusiveness and study the birds of this continent as a part of the birds of the whole earth, lest our views become narrow and our opinions one-sided. The North American avifauna is only a small part of that of the world, and cannot be properly understood unless viewed from the standpoint of a general knowledge of the whole class. An additional number of American subscribers to Madarász's 'Zeitschrift' would indicate that we have determined to emerge from our seclusion and take a place among the students of the whole class, and not merely of the birds inhabiting a single zoölogical province. The address of Dr. J. v. Madarász is the National Museum, Budapest, Hungary.—L. S.

Goss's Revised Catalogue of the Birds of Kansas.*—Our readers will remember the Catalogue of the birds of Kansas published by Col. N. S. Goss, in 1883. Since that time, several new facts have been brought to light, and a number of species have been added to the list. The present "Catalogue" contains 335 species and races, against 320 in the old list. All local lists are of much value when carefully prepared, and aid us greatly in determining the geographical range and migration of species. Much time and care have evidently been given to the preparation of this work, and Col. Goss is to be congratulated on the successful completion of so interesting a contribution to our ornithological knowledge of Kansas. The arrangement and nomenclature is that of the A. O. U. Check List. —C. B. C.

*A revised Catalogue of the Birds of Kansas, with descriptive notes of the Nests and Eggs of the Birds known to breed in the State. Topeka, 1886. 8vo., pp. vi + 76.

Capen's 'Oölogy of New England.'*—Under this title Mr. Capen has published a handsome volume, illustrating in color the eggs of our New England birds. It is a work which will, no doubt, be welcomed by many who are interested in egg-collecting, and they will find these colored illustrations of great assistance in the identification of specimens. Short descriptions of the eggs and nests are given, together with notes on the breeding habits of the species.

We wish that the author had given his authority for including among the birds *known* to breed in New England, such species as *Empidonax acadicus*, *Polioptila cærulea*, and *Thryothorus ludovicianus*, while omiting others, such as *Plectrophenax nivalis* and *Lanius borealis*.

The typography and general appearance of the book is excellent, the plates especially being far better than colored lithographs usually are. —C. B. C.

Nests and Eggs of the Birds of Ohio.—We have a double number of this great work, which maintains the high character of which we have often spoken already. It is Parts 21 and 22, pp. 235–286, pll. lxi-lxvi. Of the six plates, three are devoted to various eggs, chiefly of water birds, and birds of prey without nests. Of those with nests, pl. lxi represents *Lanivireo flavifrons* and *Helminthophaga chrysoptera;* pl. lxv, *Seiurus auricapillus;* pl. lxvi, *Parus atricapillus*.—E. C.

Mrs. Miller's 'Bird-Ways.'†—Few more delightful bird-books have appeared than Mrs. Miller's 'Bird-Ways,' it being of equal interest to the bird-lover and the specialist. In style it is simply admirable, from the purity and simplicity of its diction. The book is made up largely of articles previously published in the 'Atlantic' and other magazines, but contains several papers not before printed. Mrs. Miller is a genuine bird-lover, intelligent and accurate in her observations, whether of birds in the aviary or in the field. Many of her sketches relate to some of our native birds kept as household pets, and include the Robin, the Wood Thrush, the Catbird, the Red-winged Blackbird, and the Baltimore Oriole. There is also a chapter on the European Song Thrush, while no less than five are devoted to the European House Sparrow, which latter have the following headings: 'A Ruffian in Feathers,' 'A Tragedy in the Maple-tree,' 'Trouble in the Honeysuckles,' 'The Bird of the Street,' and 'These are your Brothers.' In these are well depicted the character and domestic life of this discordant and now unwelcome denizen of our streets and parks. The chapter on the Robin is suggestively headed 'The Bird of the Morning'; the two chapters on the Wood Thrush are entitled respectively 'The Bird of Solitude,' and 'A Gentle Spirit,' while the Red-winged Blackbird is 'The Bird of

*Oölogy of New England; a description of the Eggs, Nests and Breeding Habits of the Birds known to breed in New England, with colored illustrations of their Eggs. By Edwin A. Capen. Boston, 1886, 4to., pp. 116, pll. xxv.

†Bird-Ways. By Olive Thorne Miller. Boston and New York: Houghton, Mifflin & Company, 1885. 16mo., pp. viii, 227.

Society.' These felicitous titles indicate the character of the sketches, which are based on personal experience and observations.

The present little volume forms a fitting addition to its publishers' previous trio of bird-books, namely, Torrey's 'Birds in the Bush,' and Burroughs's 'Wake Robin' and 'Birds and Poets,' either of which it easily rivals in interest and literary merit.—J. A. A.

The 'Water Birds of North America'—Explanations.—In the April number of 'The Auk,' III, p. 266, Mr. Ridgway has undertaken to "rectify" some of my corrections of the above work made in the January number (III. p. 124), and asks for certain explanations. It is unfortunate that remarks intended by me to be complimentary, and purely for the advancement of the science, should be so misconstrued as to lead to discourteous and almost personal criticism; but while disavowing the least intention to be unjust to the authors and compilers, I must insist on the right to give facts, even if contrary to their statements, and to let the public form their own opinions as to the points in dispute. Mr. Ridgway calls my article "a long list of so-called corrections." There are really less than thirty items given by me from the perusal of two quarto volumes of more than 700 pages, showing *prima facie* but little to correct. Many (14) of the items are typographical or proof-reader's errors, which need correction. Eight items are "additional observations," which I mention as such rather than corrections, although mostly called for by the omission of Dr. Brewer to quote them while compiling a work intended to comprise the whole history of the birds as then known. The corrections I make relating to the writings of others are all typographical, except those given below, and Dr. Brewer's omissions.

I now proceed to answer Mr. Ridgway's questions and "rectifications" of his own portion of the work, hoping to satisfy him and all others as to the facts.

Mareca americana. Widgeon.—The authority for the fact that the Widgeon does not breed in the United States is the history given in Vol. I. p. 522–524, where it is quoted as breeding abundantly in British America, "but only rarely in the extreme northern parts of the United States," without giving any instance of the last-named kind. Mr. Ridgway's specimens, though published eight years previously, are not referred to—a strange omission.

I must, however, confess here to a blunder of my own, which is, that I should have given *Æthyia americana*, the Red Head, as mentioned by Dr. Heermann, among the Ducks breeding in Sacramento Valley, California, not the Widgeon. No one else seems to have found it breeding south of Lat. 42°.

Pelecanus californicus *Ridgw.*—This being a little-known form I ventured to give some facts as to specimens I collected at San Diego, without any intention to "discredit" its distinctness as a *species*, but I will now assert that its claims to that distinction seem very slight. Its larger size is in accordance with the local variations of many other birds, and the

red condition of the pouch might easily be explained by individual or accidental causes. As Brown Pelicans are found on both sides of the Panama Isthmus, and must fly across it, a comparison of Central American specimens should furnish important points on this subject. As now stated, the West Coast bird looks like a mere subspecies or local race.

Cymochorea melania and C. homochroa. — Notwithstanding Mr. Ridgway's positiveness, I have to reassert the *facts* regarding Emerson's specimens, that with Ridgway's descriptions before me, and the bird in my hand, I found it to differ from both as mentioned, being decidedly intermediate.

Puffinus stricklandi *Ridg.*—Mr. Ridgway himself answers his question why I considered my specimen *P. stricklandi* instead of *P. griseus*, by acknowledging his own error in regard to the difference in size of the two species, my bird being larger than the largest size given for the former. Not having the specimen at hand I cannot decide as to plumage, but at the time I collected it I compared it with Coues's monograph of *Puffinus*, and found it agree with *P.* "*fuliginosus*" (=*stricklandi*), *not* with *P.* (*Nectris*) *amaurosoma* (=*griseus*). So the question rests on the accuracy of the descriptions of Coues and Ridgway.

As to the unification of several so-called 'species,' we need only to look at the synonymy of most of the Longipennes and Tubinares to see that great combinations of nominal species have been made already, and a study of the species still recognized shows that many of them differ very slightly. Their distinctness is based on the fact that intermediate forms have not yet been found. This is an artificial rather than a natural basis of distinction, as shown by the difference in degree of distinctness found in groups of species breeding on continents and those breeding on islands; both land and water-birds. In continental groups we find many species embracing several subspecies or geographical races, especially where of very wide range, these races connected by graded links. Island-breeding birds, however, while presenting many local races, are so separated by water from each other that there is no intermediate ground for the production of connecting links, and the local races, therefore, are called 'species' though often less different than the extreme races of some continental birds. Therefore, I still assert that consistency requires the combination of many so-called species of water-birds if not into fewer 'species,' at least into groups nearly corresponding to some continental species. The descriptions of the four *Puffini* mentioned show close similarity in size and form. The difference in plumage, on which two have been separated as *Nectris*, if positively proved not to depend on age (which is left unsettled in the 'Water Birds'), may be dichromatic forms, like those of some Herons. There is not enough known yet regarding these birds to decide this question. But accepting Mr. Ridgway's decision that all the species he gives are distinct, we are forced to the conclusion that a 'species' depends rather on the nature of the earth's surface, separating the breeding places of two forms, than on the degree of difference between the forms themselves.—J. G. Cooper, M. D.

[It is a matter of surprise and regret to me that any portion of my remarks, above referred to, should be construed by Dr. Cooper as being either "discourteous" or "almost personal." They were certainly not so intended, and upon again carefully reading both Dr. Cooper's 'Corrections,' and my 'Rectifications' I am unable to find anything in the latter justifying such construction.

In taking cognizance of Dr. Cooper's article, I exercised merely the privilege of an author to defend his writings against adverse criticism, and in the present case it was my duty, as well as privilege, to do so, in order that the interested portion of the public might have the *other side* of the "points in dispute." The points under discussion are not so much matters of personal concern as they are questions of facts; and the circumstance that exactly one-half of the thirty items given by Dr. Cooper under the indiscriminating title of 'Corrections' relate merely to typographical errors, many of them so obvious that no correction is necessary, while of the remaining fifteen more than half constitute, as he himself states, items of "additional information," will, I think, justify my use of the term "so-called" in connection with them — a characterization the more necessary since Dr. Cooper expressly says, in his introductory remarks, that "the following corrections . . . . relate chiefly to quotations from my [his] own writings," which, in point of fact, as shown above, they do not do.

Dr. Cooper himself, in the above, 'rectifies' his 'so-called correction' regarding the breeding of *Mareca americana* by explaining that he meant *Aythya americana*. In regard to this species, I would also refer him to 'Ornithology of the Fortieth Parallel' (p. 625), where it is stated that "in June, either this species [*A. vallisneria*] or the Red-head was very abundant in the tule sloughs in the vicinity of Sacramento, where they were undoubtedly breeding." I have since had reason to consider the species as being beyond question *A. americana*, and not *A. vallisneria*.

Respecting the overburdening of the synonymy of "most of the Longipennes and Tubinares," for which Dr. Cooper suggest a remedy, a considerable "lumping together" of allied forms, it must be stated that the unfortunate condition which others, no less than Dr. Cooper, deplore is chargeable much less to those who draw fine distinctions (or, more properly, who are scientifically accurate), than to those who ignore distinctions which really exist, who have made erronous identifications, and who have given new names to species already named without being aware of the fact. In short, to any one who will take the trouble to look up the history of the synonyms of almost any species thus burdened, it will become very evident that they owe their existence to very many circumstances over which the so-called 'hair-splitter' has no control, and for which he is in no way responsible.

The suggestion that certain dark colored *Puffini* "may be dichromatic forms" of other white-bellied species, is not new, having been made at least a year ago. Speaking of dichromatism among the Herons, Dr. Leonhard Stejneger, in 'Standard Natural History,' Vol. IV, p. 7 (1885), says: "The example from the herons can be nearly duplicated by the status

of some forms of fulmars, from the northern Atlantic and Pacific oceans. . . . . We have other examples of dichromatism in the same group, as the dark and white forms of *Ossifraga gigantea*; and Mr. Ridgway's suggestion that it will be found more [or less] extensively all through the superfamily of Tubinares or Procellaroideæ, is well worth consideration.'

As to other questions involved, their further discussion by me is unnecessary, and the valuable space which would thus be sacrificed can easily be filled much more acceptably to the readers of 'The Auk.'—Robert Ridgway.]

Dr. Shufeldt on the Osteology of the Trochilidæ, Caprimulgidæ, and Cypselidæ.* — In the present paper, Dr. Shufeldt treats of three of the most interesting families of birds, anatomically speaking. He gives very detailed descriptions of the bones of *Trochilus alexandri*, several *Chordeilæ*, and *Phalænoptilus nuttalli*, as well as *Panyptila saxatilis*, accompanied by finely executed plates, for which working anatomists who have no access to the forms mentioned, will be very thankful. It can not be our intention, in the present connection, to examine into the general correctness of the descriptions, which may be taken for granted until disproved, but we are obliged to say that Mr. Frederic A. Lucas, the osteologist of the National Museum, Washington (who is also the original source of the information contained in a note in 'Science,' 1886, p. 572), has called our attention to the fact that Dr. Shufeldt in describing and figuring the forelimbs of *Trochilus*, has transposed the humeri of the two sides, and described and figured the right humerus in place of the left one, which seems quite obvious from an inspection of pl. lxi, fig. 3*h* as compared with the corresponding part of fig. 4. The great difference which Dr. Shufeldt found in the form of this bone in Micropodidæ (= Cypselidæ) and Trochilidæ is thus easily accounted for and reduced to very little indeed.

But more interesting to ornithologists in general are his 'Conclusions' which sum up the results of his comparisons of the three families. He first confirms the correctness of the view held by a great many ornithologists and anatomists (*ex. gr.*, W. K. Parker, Newton, Nitzsch, Garrod, Forbes, etc.), that the Caprimulgi are not very closely related to the Cypseli or Trochili, and should be removed from the 'order' Macrochires. It is very interesting to remark that Nitzsch, in establishing this term, only included therein *Cypselus* and *Trochilus*, while *Caprimulgus* and its allies were kept in a group by themselves. It is not probable that the separation of the Goatsuckers from the other two groups will be seriously challenged. Not so, however, Dr. Shufeldt's conclusion, that the relationship of Cypseli and Trochili is equally remote, and that "with the exception of a few minor points in their organization, the Swifts are essentially

* Contribution to the Comparative Osteology of the Trochilidæ, Caprimulgidæ, and Cypselidæ. By R. W. Shufeldt, M. D. < Pr. Zool. Soc. London, 1885, pp. 886-915 + pll. lviii-lxi.

modified Swallows, and, as the family Cypselidæ, they belong in the order Passeres, next to that group." Here we must enter a most decided protest, quoting, as we do, Prof. W. K. Parker, perhaps the most competent anatomist living. He says of the Swallow*: "In this remarkable group of tender-billed Passerines, there is not, as far as I am aware, a single aberrant character of importance. The skull, the skeleton generally, the digestive and the vocal organs, — all these might belong to species of the genus *Sylvia*. And yet, in minor adaptive modifications (I say *minor* in reference to what is of importance in morphology), these birds are full of modifications, and to the unscientific eye they appear to belong to the kind of the Swifts, and not to the kind of the ordinary Warblers. The Swifts, however, lie on the extreme margin of the Coracomorphæ, and form another group, which leads to the Goatsuckers; but the Swallows have retained (or gained) that perfect *syrinx* which is the sign and the seal of their right to the title 'Oscines.'" And of the Swifts he says (op. cit., p. 295): "Although the border of the Swifts falls to them close on that 'topland' of the Passerines where the Swallows congregate, yet are these conterminous groups only 'second cousins,' and more alike in their habits and mode of dress than in their real nature. . . . Now a Swift, as to his skull and face, is merely an exaggerated Swallow, an *ultra-hirundine* bird, a caricature, as it were, of the true Passerine gaping birds. In the skeleton he comes close to the Humming-bird; in the huge disproportion in length of the *arm* to the *hand* even the Swallow begins to be very *Cypseline;* but the Swift and the Humming-bird are here as one. So also, are they in the sternum and shoulder-girdle; the Swift also has lost the 'cæca coli,' and has not developed any intrinsic muscles to the syrinx."

Is it possible that Dr. Shufeldt has overlooked the *many* points in which Swallows and Swifts disagree outside of the skeleton? It may be well to enumerate some of the most salient features, and for that reason we introduce the following brief statement from the 'Standard Natural History,' IV (1885), p. 437: "Externally they may be easily distinguished; the Swifts by having ten primaries, not more than seven secondaries, and only ten tail-feathers; while the Swallows have but nine primaries, at least nine secondaries, and twelve tail-feathers. The Swifts have also the dorsal track bifurcate between the shoulders, while in the Swallows it is simple. Internally they differ in a great number of points, but we shall only mention that the Swifts have a sternum, while the Swallows have the manubrium bifurcate, and the posterior border deeply two-notched; the former have a myological formula A $\frac{\cdot}{\cdot}$, the latter A X Y $\frac{\cdot}{\cdot}$; the former are synpelmous, the latter are schizopelmous; the former have a peculiar arrangement of the tensor patagii brevis, the latter have the general arrangement of the Passeres; the former have a simple syrinx without intrinsic muscles, the latter have a very specialized syrinx; the former are without cæca, the Swallows possess them, etc., the total effect being that the Swifts are Picarians and the Swallows are Passeres."

* Trans. Zool. Soc. London, X, 1878, p. 293.

Dr. Shufeldt explains the similarities in the skeletons of Swifts and Hummers by saying that "such similarities are due to physiological adaptation of structure, referable in the present instance to the peculiar flight of these birds, and the consequent requirements of the muscles involved in it." But what differences are there in the Swifts' flight from that of the Swallows' that should have caused such a remarkable modification towards the Hummingbirds? And are not the Swallows' and the Swifts' flight more similar *inter se* than that of either one to the Hummers? How is it then that the wings of Swifts and Hummers are more alike, even in the shape of the humerus and its processes?

Finally we take the liberty to introduce a scheme of the Picarians which we prepared last year for the bird-volume of the 'Standard Natural History.' The order Picariæ is quite polymorphic, but, after all, we do not regard it as so extremely unnatural. Some few forms may have to be eliminated, but until it be shown that these have had an ancestry different from the common stock from which most of them have sprung we consider it as consisting of the following super-families:

Homalogonatous; desmopelmous;			*Cuculoideæ*	dorsal tract furcate between the shoulders.
			Coracioideæ	
Anomalogonatous.	*X* enters into the myological formula.	synpelmous	*Colioideæ;* feet pamprodactylous	dorsal tract simple between the shoulders.
			Alcedinoideæ; feet anisodactylous	
		schizopelmous;	*Upupoideæ;* dorsal tract furcate between the shoulders.	
		antiopelmous;	*Picoideæ;* zygodactylous . . .	dorsal tract simple between the shoulders.
		heteropelmous;	*Trogonoideæ;* hetorodactylous	
	A alone constitutes the myological formula.		*Micropodoideæ* pamprodactylous or anisodactylous	

We remark that the Goatsuckers are referred to the super-family *Coracioideæ*, consequently far from the Cypseli and Trochili, which we include in the super-family Micropodoideæ.

In the mean time, we are always thankful for the contributions of Dr. Shufeldt, and we learn with great satisfaction that it is his intention to take up the Trogons next. But we must warn against conclusions solely drawn from osteological characters, and in the present order, especially against such ones as are based chiefly in the features of the bony palate. A natural system cannot be based upon one single set of characters; all will have to be carefully considered, whether they are external or internal, before we can hope to understand the true relationship of the different groups.—L. S.

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GENERAL NOTES.

Phœnicopterus ruber as a South Carolina Bird.—In the A. O. U. 'Check-List' the habitat of the Flamingo is given as "Atlantic coasts of subtropical and tropical America; Florida Keys." This statement, excluding the Audubonian record, does not complete the written history of its distribution so far as South Carolina is concerned. In the 'Monthly Report of the South Carolina Department of Agriculture' (Circular No. 5, new series, Aug. 1, 1885, pp. 6, 7) Dr. G. E. Manigault, Curator of the Museum of the College of Charleston, mentions the capture of a specimen near Georgetown, in September, 1876. The bird was forwarded to the museum, but not being well prepared had to be thrown away. It is not improbable that the species was formerly more than an accidental visitant in the State, as both Ramsay and Mills include it in their vernacular lists; the former, in his 'History,' in 1809, and the latter in the 'Statistics of South Carolina,' in 1826, about the time of the disappearance of the Paroquet from our local fauna.—Leverett M. Loomis, *Chester, S. C.*

More News of Ardetta neoxena.—I have received a letter from Mr. R. T. Stuart of Tampa, Florida, who claims to have killed the type of this species. He states that he remembers it perfectly, and that he shot it on or near the Caloosahatchee River, near Lake Okeechobee, Florida.—Charles B. Cory, *Boston, Mass.*

Another Speciman of Ardea wuerdmanni?—I have received from Mr. R. T. Stuart an *Ardea* which closely resembles the type of *A. wuerdmanni* in the Smithsonian Institution. So many theories have been advanced regarding this bird that it would be hardly advisable to hazard new guesses as to the cause of the peculiar coloration. The specimen was killed in Southwestern Florida, and a number of the Great White Heron (*Ardea occidentalis*) were killed in the same locality.—Charles B. Cory, *Boston, Mass.*

Early Arrival of a Rare Bird.—On the 18th of March, the present year, a Black Rail (*Porzana jamaicensis*) was captured on low bottom land near Neosho Falls, Kansas. This is much earlier than it has previously been noticed.—N. S. Goss, *Topeka, Kans.*

Ægialitis meloda circumcincta on the Coast of South Carolina.—While collecting waders on the fine sea beach of Sullivan's Island, near Charleston, May 11, 1885, I shot a typical specimen of the Belted Piping Plover (*Æ. m. circumcincta*). It was a male in high nuptial plumage, with the black pectoral collar broad and continuous. There can be little doubt that this inland form will prove to be a regular if not uncommon fall and spring visitor to the Atlantic coast of the Southern States.—William Brewster, *Cambridge, Mass.*

The Snowy Plover on the Salt Plains of the Indian Territory and Kansas.—On the 18th of June, 1886, I found *Ægialitis nivosa* breeding on the salt plains along the Cimarron River, in the Indian Territory, the northern limits of which extend across the line into southwestern Comanche County, Kansas. I shot two of the birds within the State limits, at the edge of the plains, and saw one more, a female, with two young birds nearly half grown, which I had not the heart to disturb. Just south of the line, in the Indian Territory, I saw several of the birds, and started one from a nest—a depression marked out in the sand, with no lining, and nothing near to shelter or hide it from view. The nest contained three eggs nearly ready to hatch. Their dimensions are 120 × 90, 120 × 89, 122 × 89; color, pale olive drab (approaching a light clay color with a greenish tint), rather evenly and thickly marked with irregularly-shaped, ragged-edged splashes and dots of dark or blackish brown. The measurements of the three birds shot, which on dissection proved to be females, are as follows:

Length.	*Extent.*	*Wing.*	*Tail.*	*Tarsus.*	*Bill.*
6.40	13.20	3.90	1.80	.95	.60
6.50	13.50	4.00	1.80	.95	.60
6.60	13.70	4.10	1.90	.95	.60

Iris dark brown; bill and claws black; legs and feet bluish ash. The birds are lighter in color, and the markings about the head not quite so distinct, as in the pair in my collection shot at San Diego, California, in November, 1881. I therefore send two of the skins for examination, as I have not any specimens in the breeding plumage from the Pacific coast.

When I started for the salt plains it was my intention to spend several days and carefully look up its bird life; but a business matter called me home, and as it was important that I should reach the stage line that evening, I only had time for a short and hurried ride over a very small portion of the grounds. From the number of these Plovers seen, however, I think it safe to enter them as quite a common summer resident.—N. S. Goss, *Topeka, Kansas.*

[The two birds sent by Col. Goss are very much lighter in color than California specimens taken in the breeding season, but agree exactly with a specimen in Mr. Sennett's collection taken at Corpus Christi, Texas, May 24, 1882. These three examples differ markedly from Pacific Coast specimens, they showing only the merest trace of the fulvous tinge on the head, while the black markings are much paler, and the upper plumage generally presents a bleached or washed-out appearance. Doubtless additional material will show that the birds of the Plains—from Texas northward to Kansas—are well entitled to subspecific separation.—J. A. Allen.]

Naturalization of the European Goldfinch in New York City and Vicinity.—I am informed by Mr. W. A. Conklin, of the Central Park Menagerie, New York City, that the European Goldfinch (*Carduelis elegans*)

first appeared in the Park in 1879, having probably crossed the Hudson River from Hoboken, N. J., where some birds had been set at liberty the previous year. The species is now common and apparently resident.

On April 20, 1886, I discovered, in precisely similar situations, two nests, one of which, containing five fresh eggs, has been forwarded to the Smithsonian Institution. It was placed in a pine tree, resting among the tufts of long needles near the end of a slender horizontal limb, some twelve feet from the ground.

The species seems to be gradually extending its range, as on May 23, 1886, I met with a pair occupying a clump of pines six or seven miles to the northward.—E. T. ADNEY *New York City.*

Ammodramus lecontei near Charleston, South Carolina.—During the past two winters Mr. Wayne has been searching carefully for Leconte's Sparrow, and his efforts are at length crowned with success, for he now sends me a female, shot January 26, 1886, about seven miles inland from Charleston. This extends the range of the species practically to the coast of South Carolina, but it is doubtful if it ever occurs there in anything like the numbers which Mr. Loomis finds in Chester County.—WILLIAM BREWSTER, *Cambridge, Mass.*

The Cardinal Grosbeak and Tufted Titmouse breeding in Essex County, New Jersey.—Although not remarkable, it may be worthy of note that these two species are residents in greatly increased numbers in this vicinity, during my residence here of the last three years. They are quite common in suitable localities at all seasons. In 1884 a nest of a Cardinal was brought me, and this season I found two more, containing respectively two and three eggs each, on May 24 and May 28, which had been incubated some days.

Although I have not been fortunate enough to take the eggs of the Tufted Tit myself, they breed in considerable numbers at Springfield, two miles from here, while near Chatham a boy found two sets last year and two this year, in the early part of May.—H. B. BAILEY, *South Orange, N. J.*

Vireo solitarius alticola at Charleston, South Carolina. — Among other interesting birds collected for me by Mr. Wayne, during the past winter is a typical specimen (♂) of this new bird. It was shot February 20, 1886, within a few miles of Charleston, where it may prove to be a regular winter resident, although all the winter and early spring specimens which I have hitherto seen from that locality, as well as from Georgia and Florida, have been true *solitarius.*—WILLIAM BREWSTER, *Cambridge, Mass.*

Occurrence of the Prothonotary Warbler (*Protonotaria citrea*) in Massachusetts.—On the afternoon of May 9, 1886, I was rowing up the Assabet River in Concord, Massachusetts, when my companion, Mr. D. C.

French, called my attention to a small bird, which was hopping about in some driftwood at the edge of the water. Getting only a glimpse at it I mistook it for a Yellow Warbler and was about to take up the oars again when it came out in full view and I at once recognized an old friend which I certainly never expected to see in Massachusetts, viz.: the Prothonotary Warbler. It seemed perfectly at home, flitting from twig to twig, jetting its tail, and occasionally chirping sharply. Once it sang in an undertone. It was very tame, and as we sat watching it our boat drifted past within a few yards without alarming it. Finally I shot it. It proved to be an adult male in high plumage. Its skin was well covered with fat, its stomach filled with insects, chiefly beetles. The weather was fine at the time, but on the preceding day an easterly storm of some violence prevailed along the Atlantic coast, from Cape Hatteras to New England. To this storm I doubtless owe the pleasure of adding the Prothonotary Warbler to the fauna of our State, for my specimen is the first that has been reported from Massachusetts, although the bird has occurred once previously in Maine, and once in Rhode Island.—William Brewster. *Cambridge, Mass.*

Helminthophila leucobronchialis in New Jersey.—A specimen of this hybrid was killed about ten miles from this place by Mr. Auguste Blanchet in the latter part of May, 1859. The entire dorsal plumage is tinged with greenish-yellow; the throat and cheeks are pure white, very lightly tinged with yellowish; upper breast grayish; breast yellow, extending toward the crissum; a small black line through the right eye, a large grayish patch behind the left; wing-bars yellow. The whole plumage resembles somewhat that of the female *H. chrysoptera*, but the grayish on the breast is not so deep.—E. Carleton Thurber, *Morristown, N. J.*

An Interesting Specimen of Helminthopila.—Mr. E. Carleton Thurber, of Morristown, New Jersey, has kindly sent me for examination a *Helminthophila*, which differs considerably from anything that has been hitherto described, and which is apparently a hybrid between the hybrid *H. lawrencei* and the typical *H. pinus*. It is most like the adult male *H. pinus*, the wing- and tail-markings and general coloring, both above and beneath, being essentially the same. But across the jugulum there is a broad band of heavy black spots, and the black eye-stripe, short and well defined in *pinus*, is in this bird narrowed to a mere line anteriorly, and posteriorly extends to the auriculars, over a portion of which it spreads, forming a dusky or blackish patch more or less broken or overlaid by a plentiful mixture of yellow. The black-spotted space on the jugulum is widest in the middle, narrowing gradually as it approaches the sides. Its greatest width is rather more than one-quarter of an inch. The spots are subterminal, all the feathers being tipped, and many of them edged as well, with the rich yellow of the underparts generally. This, of course, tends to conceal the black, but it cannot be entirely concealed by any arrangement of the feathers, and when they are disarranged ever so slightly it is a

conspicuous feature. Its effect is not unlike that seen in young autumnal males of *Dendroica virens*, which have the black of the throat and jugulum more or less similarly overlaid with yellow.

In briefer terms, this interesting bird may be said to be about intermediate in color and markings between typical *pinus*, with its short, narrow eye-stripe and uniformly yellow underparts, and the so-called *H. lawrencei*, which has a broad, black patch extending from the bill through and behind the eye, and the chin, throat, and forepart of the breast solidly black. It forms an important link in the chain of evidence supporting my theory* that *H. pinus* and *H. chrysoptera* frequently interbreed, and that their offspring perpetuate a variously-characterized hybrid stock by breeding back into one or the other parent strains. That this is the only possible way of accounting for the now almost complete series of intermediate specimens connecting the obviously distinct species *H. pinus* and *H. chrysoptera* is to my mind certain, despite the able argument to the contrary lately published† by Mr. Ridgway.

Mr. Thurber tells me that the specimen just described, was shot about May 15, 1884, two miles from Morristown, and exactly four and one-half miles from the place where the type of *lawrencei* was obtained. The sex was not determined, but it is undoubtedly a male. The collector, Mr. Frank Blanchet, has also taken another hybrid of the '*H. leucobronchialis*' type in the same locality [as above recorded by Mr. Thurber].—William Brewster, *Cambridge, Mass.*

Kirtland's Warbler on St. Helena Island, South Carolina.—Mr. W. W. Worthington, of Shelter Island, New York, has shown me a skin of this Warbler which he has secured for his private collection. The specimen is a male in full plumage and was shot by a native lad on the 27th of April. I had suspected the existence of the species here before, but was unable to secure any specimen. On May 3, while returning to camp without my gun, I observed three specimens near the middle of the Island. They were quite familiar, allowing me to approach cautiously within less than a rod, and seemed to be at home—not tired, and yet anxious to be off, as passing migrants usually are. The notes are of two distinct characters. The first, a song, was uttered with the head held forward and the body quite erect. It bore a striking resemblance to the song of the Yellow-throated Warbler. The second was a loud chipping, uttered while moving about among the bushes, and was kept up for a space of one or two minutes at a time. Resting a few seconds the bird would begin again, creeping about the branches and 'swapping ends' with a quick, jerking movement all the time. Arriving near the top of the bush or the end of the branch he would settle himself and sing two or three times before fluttering to the next bush. All these specimens were in low bushes and seemed to prefer them to trees. For though there were

* Bull. Nutt. Orn. Club, Vol. VI, 1881, pp. 218-225.

† Auk, Vol. II, 1885, pp. 359-363.

plenty of them about, and some very tall ones, I saw none of them ascend to a greater height than ten feet. Neither did I see any of them alight on the ground. The time was shortly after sunrise. A subsequent visit to the same locality at mid-day was unsuccessful.—WALTER HOXIE, *Frogmore P. O., St. Helena Id., S. C.*

Connecticut Warbler—A Correction.—In the 'Bulletin of the Nuttall Ornithological Club' for July, 1882 (Vol. VII, p. 190), I recorded the capture of a Connecticut Warbler at Ebeme Lake, Maine, in August, 1879, which made the second record for the species in the State.

To make certain of its identity I sent the skin to Dr. T. M. Brewer, who wrote me (Oct. 26, 1879) that as well as he could make out the specimen was the Connecticut Warbler, but that he would get some one more *au fait* in plumage than he was to confirm or reverse his opinion.

Following this he returned the skin and wrote (Oct. 30): "I have shown the inclosed to Mr. Allen and have his confirmation of my own impressions. The *agilis* is rather an interesting specimen."

Lately the question of its correct identity was again raised, and to make assurance doubly sure I sent the skin to Mr. William Brewster for examination, giving its history. Mr. Brewster wrote me (March 28, 1886): "The case is of such importance, I have compared it carefully with large series of both *Oporornis agilis* and *G. philadelphia*. There can not be the slightest doubt as to its identity. It is a *perfectly typical Geothlypis philadelphia* in autumnal plumage." From Mr. Brewster's careful examination he is undoubtedly correct, and I would correct the record already made.—HARRY MERRILL, *Bangor, Me.*

'Aptoso-Chromatism.'—In the 'Ornithologist and Oölogist' for April, 1886 (Vol. XI, p. 49), Mr. Walter Hoxie has an article under the title 'Aptoso-Chromatism'—a term intended to designate the "'moultless color change' in the feathers of birds." Mr. Hoxie suggests that aptoso-chromatism is induced by the activity of the sexual organs, and claims its occurrence in both sexes, and cites in proof the changes in color noted in the Cardinal at the beginning of the breeding season. He finds that "the Black-bellied Plover, Red-breasted Snipe, Sanderling and Turnstone show a tolerably even ratio between perfect plumage and the development of the sexual organs, independent of the stage of moult." The argument is not very clearly stated, and the illustrations given relate in part to birds which undergo a change of color through a spring moult as well as independently of it. It is well known that many birds, particularly males, undergo a color change, more or less extensive and well-marked, as the mating season approaches, either in consequence of a partial moult, or without an actual renewal of the plumage. This coincidence of the change of color with the period of activity of the sexual organs seems to be looked upon by Mr. Hoxie as a relation of cause and effect, the former being due to the latter. While this may be true, certain facts may be recalled which tend to show that both are simply an expression or in-

dication of the complete maturation of the whole organism, so far as regards the first assumption of the nuptial plumage by young birds. In respect to the older birds, the donning of the nuptial dress and activity of the sexual organs are coincident phenomena of the breeding season, but that the latter is not necessarily the cause of the former seems evident from the breeding of young male birds before acquiring the nuptial dress, as is well known to occur in many species, familiar examples of which being the Purple Finch, the Redstart, and the Orchard Oriole. The subject, however, is an important one, well worthy of the most careful investigation.—J. A. Allen, *American Museum of Natural History, 77ht St. and 8th Ave., New York City.*

CORRESPONDENCE.

[*Correspondents are requested to write briefly and to the point. No attention will be paid to anonymous communications.*]

The Classification of the Macrochires.

To the Editors of the Auk:—

Sirs: Recent examinations of nine of the skeletons of the representatives of the three sub-orders of birds (Caprimulgi, Cypseli, and Trochili) now constituting, according to the Check-List of the American Ornithologists' Union, the order Macrochires, convince me, so far as skeletal characters go, that we are retaining in the same order birds that undoubtedly belong to very different orders. There is no question in the world but that the Swifts are widely separated from the Hummingbirds, and a comparison of the structural characters of any of the forms of these two groups will at once convince us that they are fully entitled to ordinal rank. The Cypseli are profoundly modified Passeres, coming nearer the Swallows in their organization than any other group of birds, and should be awarded a place in the system accordingly. On the other hand, the Trochili are fully entitled to an order by themselves, and further investigations are necessary to ascertain how they are approached, structurally, by other groups.

Again, this classification will leave the Caprimulgi standing out by themselves, as they undoubtedly should do, in an order of their own, as an examination of their organization goes to show that they have but little in common with the Cypseli, and are widely separated from the Hummingbirds.

My preliminary examination into the structure of this group has just been published (Dec. 1, 1885) in the 'Proceedings' of the Zoölogical Society of London, where much will be found which the limitations of space will prevent me from discussing here, but further investigations in the directions pointed out are of the highest interest and importance. It is

my intention, if nothing prevents, to further pursue the investigations I have already inaugurated, and thoroughly compare the remaining systems of these groups, more especially the muscular, arterial, and digestive systems. To this end it is very important that I should have my material as complete as American types can make it, and the principal object of this letter is to call the attention of the members of the A. O. U. to this matter, and to solicit their assistance in the work. As my desiderata are not extensive, and for the most part not difficult to obtain, I feel that I can look with certainty to the realization of my hopes in that direction.

I have already written to some of my friends in Arizona and California for alcoholic specimens of the various forms of Trochili, and all such donations of course will be fully acknowledged in my future contributions to the subject.

Alcoholic specimens of any of the Trogons are particularly desirable, and the following forms essentially so: *Antrostomus carolinensis*, two specimens; *Chætura pelagica*, six specimens; *Progne subis*, six specimens. And, as I have already said, any of the Hummingbirds.

The specimens should be properly tagged, giving donor, locality, date, etc., and placed in good alcohol in an ordinary screw-top glass fruit-jar, and packed round with sawdust in a box as small as is compatible with safe transportation, and sent C. O. D. to me by express. I would beg such persons as are willing to assist in this work, to communicate with me *before* sending material, in order to save expense (as express rates are very high), and the undue duplication of material.

Very respectfully yours,

R. W. Shufeldt.

Fort Wingate, New Mexico, May 1, 1886.

NOTES AND NEWS.

The second edition of Dr. Coues's 'Key' being already out of print, Messrs. Estes & Lauriat announce the third edition, which will contain the new nomenclature of the A. O. U. Committee, with all necessary corrections and additions to date. This edition will appear in two forms, one like the second edition, the other called the 'Sportsman's Edition' for use in the field, on thin paper, trimmed to a very narrow margin, and bound in flexible Russia leather covers.

The Milwaukee Society of German Journalists and Booksellers have issued a prospectus of Mr. H. Nehrling's work on North American birds, entitled 'Die nordamerikanische Vogelwelt,' which is to be published by subscription in ten to twelve quarto parts, with colored plates, at $1 per part. A work in the German language on North American birds is still a desideratum, and one which is doubtless much felt by the German Americans; and no one is doubtless better fitted than Mr. Nehrling to supply

this want, as his various ornithological communications to various German periodicals and newspapers, both in this country and in the 'Fatherland,' have already well shown. We wish this timely enterprise the success it so well deserves.

Besides Mr. Capen's 'Oölogy of New England,' noticed briefly on an earlier page of the present number of 'The Auk,' we have also to note the recent appearance of the second edition of Mr. Oliver Davie's 'Nests and Eggs of North American Birds,' which is "increased in size and entirely rewritten." It will doubtless prove a welcome hand-book of the subject.

Parts 2 and 3 of 'Ornis,' the organ of the Permanent International Ornithological Committee, edited by Drs. R. Blasius and G. von Hayek, contains biological notes on some of the birds of Southeast Borneo, by F. J. Grabowsky; the report on bird migration for Heligoland for 1884, by H. Gätke, and the report for 1883 on the migration in Austria and Hungary, by Dr. K. von Dalla-Torre and Victor Ritter v. Tschusi zu Schmidhoffen, the latter alone comprising nearly 275 pages.

At the annual meeting of the Ridgway Ornithological Club, held May 13, the following officers were elected for the ensuing year: President, G. Frean Morcom; Vice-President, Ruthven Deane; Secretary and Treasurer, H. K. Coale; Curator and Librarian, Geo. L. Tappan. The Club was reported in a flourishing condition.

We are authorized to state, for the information of persons desiring to make exchanges of birds' skins or eggs with the National Museum, that no attention can be paid to applications or propositions for exchanges in which only *catalogue numbers* are used *instead of names*. If this could be borne in mind by those desiring to make exchanges, not only with the National Museum, but with other museums, much vexation and valuable time would be saved curators in hunting out and translating into names the numbers of the various check-lists in use to determine the species referred to by correspondents when using merely check-list numbers.

As the last pages of 'The Auk' go to press we have space to briefly note an important change, just made by Congress, in the status of the work on Economic Ornithology, carried on by Dr. C. Hart Merriam under the Department of Agriculture. Through the influence of Senator Miller of New York, not only has the sum of $10,000 been appropriated for carrying on the work for the present year, but this important branch of inquiry has been separated from the Division of Entomology, and made a separate division, with Dr. Merriam at its head. The scope of the work has also been extended so as to include investigations concerning the food-habits of mammals. The appropriation now made is for the "promotion of Economic Ornithology and Mammalogy; an investigation of the food-habits, distribution, and migration of birds and mammals in relation to agriculture, horticulture, and forestry; for publishing reports thereon; and for drawings and traveling and other expenses in the practical work of the division."

J. J. Audubon.

THE AUK:

A QUARTERLY JOURNAL OF

ORNITHOLOGY.

VOL. III. OCTOBER, 1886. No. 4.

ON AN OLD PORTRAIT OF AUDUBON, PAINTED BY HIMSELF, AND A WORD ABOUT SOME OF HIS EARLY DRAWINGS.

BY R. W. SHUFELDT.

SOMETIME during the latter part of May, 1885, I was the recipient of a very valuable gift from an esteemed lady of Woodstock, Louisiana, Mrs. E. C. Walker. This was nothing less than three of Audubon's early original boy-drawings of birds, and I came into possession of them through the kind intercession of Mrs. Walker's daughter, Mrs. Jamar, wife of Lieutenant Jamar of the 13th U. S. Infantry, then stationed at Fort Wingate, New Mexico.

It will be remembered by those conversant with the life of Audubon, that sometime during his youth he spent a year or more with his parents at Nantes, France. His wife tells us in his biography, that while at Nantes, this famous young devotee of nature made a hundred drawings of European birds. These were brought back by him in his portfolio on his return to America, and it proves to be that it is three of these juvenile efforts that I now have in my possession. Rare old treasures they are to be sure, and would that I could commit to paper the quickly-passing thoughts they inspire in my mind, as I hold them up one at a time before me! They cause us to wonder whether Audubon

really dreamed, as he worked away over these crude productions, of the man he was to be some day. And we wonder, too, as we examine them, at the rapidity of his artistic development and improvement.

They are each and all drawn by a combination of crayon and water-colors upon a thin and *not expensive* kind of drawing-paper, now brittle and soiled by age. Audubon had evidently numbered these drawings of his, and these numbers are 44, 77, and 96, a European Magpie, a Coot, and a Green Woodpecker, respectively. Sometime ago I had them all reduced by photography, with the view of publishing them, but although I have been temporarily disappointed in this, I may yet have an opportunity to bring them out in some other connection.

As I have said, the earliest of these drawings is the one of the Magpie—and let us look at it for a moment. It is life size, as they all three are, and the bird is represented standing on the ground, being drawn lengthwise on the paper. The execution is quite crude, though the naturalist 'sticks out' in it, for notwithstanding the somewhat awkward position the bird is in, there is life in it. The ground is simply a wash of pale green and brown, while over on one side of the paper he has 'tried his brush,' having made some rough concentric circles with paint dabs about them. Beneath this drawing we find written in lead-pencil in two lines, "La Pie, Buffon," "Pye, Piot Magpye, Pianet, english," and over to the left-hand corner, "No. 44."

The second picture is that of a Coot, and is a marked improvement upon the Magpie. Far more pains have been taken with the feet, legs, bill, and eye, though little has been gained in the natural attitude of the bird. It is also represented standing up on the dry ground, which is here of a pale violet wash, unbroken by anything in the shape of stones or vegetation. Except very faintly in the wing, no attempt has been made to individualize the feathers, the entire body being of a dead black, worked in either by burnt cork or crayon. Beneath this figure has been written in lead-pencil, but gone over again by the same hand in ink, "La foulque *ou* La Morelle—Buffon, Riviere Loire Joselle—" "English—the Coot,—"

As is usually the case among juvenile artists, both this bird and the Magpie are represented upon direct lateral view, and no evidence has yet appeared to hint to us of the wonderful power

Audubon eventually came to possess in figuring his birds in their every attitude.

There is a peculiar pleasure that takes possession of us as we turn to the third and last of these figures, the one representing the Green Woodpecker (*Gecinus viridis*). It is a wonderful improvement, in every particular, upon both of the others. The details of the plumage and other structures are brought out with great delicacy, and refinement of touch; while the attitude of the bird, an old male, is even better than many of those published in his famous work. The colors are soft and have been so handled, as to lend to the plumage a very flossy and natural appearance, while the old trunk, upon the side of which the bird is represented, presents several evidences of an increase of the power to paint such objects. We find written in lead pencil beneath this figure, in two lines, and in rather a Frenchy hand, "Le Pic vert, Buffon," "the Green Woodpecker—British Zoology."

When Mrs. Walker presented me with these drawings, I received a very valued letter from her with them, and in it she tells me that "there was a portfolio of quite a number and variety of birds left with my father by Mrs. Audubon, but they have been given to different members of our family. He left a half-finished portrait of his wife and two sons, a portrait of himself in oil colors, taken by himself with the aid of a mirror and a life size American Eagle; were they now in my possession I would most willingly send them for your inspection."

"Mrs. Audubon was governess in my father's family for several years, also in that of a neighbor's of ours. I presume you are aware she supported herself and sons by teaching during the years of Mr. Audubon's wanderings through America in pursuit of his collections. I was but a child at the time. He was with us eight months [in Louisiana], but during the greater part of the time was wandering all over the State, walking the almost entire time;—no insect, worm, reptile, bird, or animal escaped his notice. He would make a collection, return home and draw his crayon sketches, when his son John would stuff the birds and such animals as he wished to preserve. I regret greatly, Doctor, that I cannot gratify you in giving a more minute account of Mr. Audubon's life while with us. But I was too young at the time, and as all of the older members of my family have passed away, I cannot collect such items as I might have done some years since. The two [three] crayons I beg you will accept."

Several months after receiving this letter, Mrs. Walker came to Fort Wingate to visit her daughter, and to my great pleasure brought with her the oil-painting of Audubon she speaks of in the letter just quoted. I hold this valued little art-treasure in my left hand as I pen these words. It is a quaint and winning picture, painted on rather thin canvas, and tacked to a rough, wooden frame, some 26 cms. by 31 cms., and evidently hand-made. But the hair, *the eyes*, the mouth, the nose, are Audubon's! Not only that, but given us by Audubon's hand, and that grand old naturalist's face grows upon us as we look into it. He wears an old-fashioned dark-green coat, and a still more old-fashioned neck-cloth and collar. The background is filled in by rather a rosy-tinted sky, shading off into a blue above.

I was permitted to have a photograph made of this picture, which was kindly and handsomely executed for me by Mr. Ben Wittick of Albuquerque, N. Mex. The negative was at once forwarded by me to my friend Mr. A. Richmond Hart of the famous photo-engraving establishment of Park Place, New York, and we are to thank the skill of his workmen for the reproduction of the photograph in the illustration of this old oil painting which now accompanies this article.

Taking everything into consideration, I believe the members of the A. O. U. will pardon the pride that arises within me, at having succeeded in reproducing such a picture *as this* of Audubon in the publication of an organization that we must all appreciate he would rejoice to know existed in this his own, and well-beloved country. I only hope, too, it will give others as much pleasure on seeing his face in 'The Auk,' as it has me in introducing it there, and I believe it will.

My Audubon relics hold a high place, in my eyes, among my earthly treasures, and I have in my possession at the present writing a long letter of his, written to Richard Harlan, and announcing in the P. S. his just having secured a "New Hawk" which he describes and names as Harlan's Buzzard. This letter was presented to me by Mrs. Audubon herself many years ago, and accompanied by a charming little note of presentation from the old lady, saying it was the last letter of her husband's that she possessed, etc., etc. This valued note I also have, and naturally prize it very highly. The letter itself has already been published in the 'Bulletin of the Nuttall Ornithological Club,' Vol. V. 1880, pp. 202, 203.

ON THE AVI-FAUNA OF PINAL COUNTY, WITH REMARKS ON SOME BIRDS OF PIMA AND GILA COUNTIES, ARIZONA.

BY W. E. D. SCOTT

With annotations by J. A. Allen.

(*Continued from page 389.*)

III.

51. **Columba fasciata.** BAND-TAILED PIGEON. — Common in the Catalina Mountains for almost the entire year. Breeds in July. I have met with it commonly in May and June as low down as 3500 feet, in flocks feeding on wild mulberries. It was not uncommon about the middle of April in the pine region, and I saw several flocks late in November, 1884 and 1885, in the same locality. In the fall, from the middle of September until early in December, I have met with it almost daily in flocks ranging from half a dozen to several hundred individuals. This later observation is from the oak region of the Santa Catalinas. I did not find the species in the Pinal Mountains, nor am I aware of its occurrence either about Tucson, Florence, or at Riverside.

52. **Zenaidura macroura.** MOURNING DOVE.—Resident throughout the entire region under consideration, except in the pine forests, where it probably occurs in summer. Near my house it is rare in winter, but abundant during the warmer portions of the year.

53. **Melopelia leucoptera.** WHITE-WINGED DOVE.—Though very generally distributed up to an altitude of 3500 feet, throughout the entire region, it is much more abundant in certain localities than at others. At a point about fifteen miles from Florence, on the road from that place to Riverside, is a spring known as the Little Cottonwood, where I found the birds by hundreds, in April and May, 1882. I have taken the eggs fresh, about the middle of May in the same cañon that my house is in, at an altitude of 3500 feet, but the bird is here rather uncommon. In the same locality I have also taken young just leaving the nest, June 4, 1885.

54. **Columbigallina passerina.** GROUND DOVE. — Not uncommon about Tucson and Florence, and also at Riverside. I have not met with it on the San Pedro, nor in the neighborhood of my house in the Santa Catalina range.

55. **Scardafella inca.** INCA DOVE.—The only points where I have seen this species are Tucson and Florence, where it is, especially in the latter place, of common occurrence during the warmer portion of the year. The birds are very tame and seem to affect particularly the streets and corrals and gardens in the heart of the town.

56. **Cathartes aura.** TURKEY VULTURE.—Rather common at the lower altitudes throughout the year, but migratory in the Catalina region, where I have not met with it above 4000 feet in winter, and it is rare even at that altitude at that season. I noted it in the pine woods as rare late in April, 1885, and took a nest containing two fresh eggs in the oak region of the Santa Catalinas, altitude 5000 feet, May 2, 1885.

57. **Circus hudsonius.** MARSH HAWK.—My records are from about Tucson in the fall, winter, and early spring, and also from the San Pedro River in January, 1886.

58. **Accipiter velox.** SHARP-SHINNED HAWK.—Common during the fall migration, from September 25 until the middle of November in the oak region of the Santa Catalina range. Pine region of the Catalina Mountains, one seen on November 27, 1884. San Pedro River, March 1, 1885, a few noted. Pines of Catalinas, 3d–8th November, 1885, several seen. San Pedro River, 26th–29th January, 1886, two noted. It was common in the fall of 1882 on Mineral Creek. These are all my notes in regard to this species.

59. **Accipiter cooperi.** COOPER'S HAWK.—Common. Resident and breeds in the oak region of the Catalina Mountains. But most abundant during the fall migration, which begins late in September. I have found two nests in this locality, both containing young just hatched. They were taken on June 9 and 11, 1885, and both were built in cottonwood trees, about sixty feet from the ground, and near springs.

I also found the birds common on Mineral Creek in August, 1882, and have records of its being seen during the several visits I have made to the pine region of the Santa Catalina Mountains.

60. **Parabuteo unicinctus harrisi.** HARRIS'S HAWK.—Mr. Brown has taken this species on a single occasion near Tucson.

61. **Buteo borealis calurus.** WESTERN RED-TAIL. — Resident and breeds abundantly throughout the entire region. Though many breed along the water courses, selecting generally a high cottonwood or sycamore, I have found them nesting quite as commonly in the low mesquites, miles from any water. In these cases the nests are not more than twenty and often as low as ten feet from the ground, and I found a nest once but seven feet from the ground. Not infrequently, too, I have seen the nests placed in a giant cactus where the lowest arms branch from the main trunk. On the San Pedro slope of the Santa Catalina range at an altitude of 3500 feet on March 12, 1885, I took three eggs, which had been incubated for at least a week, from a nest situated in a mesquite tree rather less than ten feet from the ground. The only instance where I have met with the very dark phase of this subspecies was near my house. It is No. 1130, ♂, and was taken on the 11th of October, 1884. The specimen is now in the collection of the American Museum of Natural History in New York.

On one occasion in 1883 I took a nestling which I kept for some eighteen months. The bird was a male, I think, and on moulting in the spring of 1884, when a year old, it assumed the full breeding plumage with clear red tail.

62. **Buteo abbreviatus.** ZONE-TAILED HAWK.—This species has been so fully discussed by Dr. Mearns in a recent number of this journal (Auk II, pp. 63-69, January, 1886) that it will suffice to say that I have met with it at all the points where I have collected, that I have records of its breeding throughout the region, generally in April, and that in the San Pedro region and about Tucson it is apparently strictly migratory.

On two occasions I have seen from the railroad, while passing through the country between Casa Grande and Bowie stations, flocks of at least fifty birds of this species, evidently migrating and closely associated together. This was in the early part of September, 1882, and as the train was going very slowly, and I was close to the birds, and had become very familiar with them in life about Riverside in the months just preceding, I could be very certain of my identification.

63. **Buteo swainsoni.** SWAINSON'S HAWK.—Only met with in the immediate vicinity of Tucson where, during the warmer portion of the year, it is common. I have seen flocks of this species congregated together, evidently migrating, in September. This was on the plain just outside of Tucson about the middle of September, 1882.

64. **Asturina plagiata.** MEXICAN GOSHAWK.—Mr. Brown tells me this species is not uncommon in the spring and during the breeding season in the vicinity of Tucson. I have not met with it at other points, but saw the species on a few occasions while driving in the neighborhood of Tucson in May, 1883.

65. **Aquila chrysaëtos.** GOLDEN EAGLE.—Common resident throughout the region at an altitude above 4000 feet. I have seen the birds carrying material for nest building early in December and noted them mating at about the same time. The birds were among those I saw almost daily throughout the year near my house in the Catalina Range.

66. **Falco mexicanus.** PRAIRIE FALCON.—A rather common resident on the plains throughout the region.

67. (?) **Falco columbarius.** PIGEON HAWK.—A small Falcon, seen several times at a considerable distance in the pine region of the Catalinas, I can only refer to this species.

68. **Falco sparverius.** SPARROW HAWK.—Resident and common up to an altitude of 5000 feet at all the points visited, but rarely seen above that elevation. It breeds commonly in deserted Woodpecker holes in the giant cacti wherever they flourish, nesting in late April and May.

69. **Polyborus cheriway.** AUDUBON'S CARACARA.—Rather common about Tucson during the warmer portion of the year, and a few are apparently resident. I have no records of the species from other points.

70. **Pandion haliaëtus carolinensis.** AMERICAN OSPREY.—Not uncommon along the larger water courses, but I have no records of it in winter, nor of its breeding.

71. **Strix pratincola.** BARN OWL.—Taken on three occasions near Tucson, which are the only records I have of the species.

72. **Megascops asio trichopsis.** MEXICAN SCREECH OWL.—Common resident and breeds about Tucson in April and early May. Also taken at

Riverside breeding in April. I took a male (No. 1675) at an altitude of 4500 feet on the San Pedro slope of the Santa Catalina Range on January 20, 1885.

This is one of the species that particularly affect the growths of giant cactus, it living and breeding in deserted Woodpecker holes.

73. **Bubo virginianus subarcticus.** WESTERN HORNED OWL.—Common resident and breeding in February and March, according to altitude. Twice I have found nests in small caves on the bluff sides of cañons near my house. Both contained young birds.

74. **Speotyto cunicularia hypogæa.** BURROWING OWL.—Near Benson, which is just outside of the region indicated on the map and to the east of it, is a very considerable colony of these birds, and I have heard from good observers of another colony northeast of Florence. The bird is unusual, however, in this area.

75. **Glaucidium phalænoides.** FERRUGINEOUS PYGMY OWL.—Not uncommon about Tucson. I have no record of its occurrence at other points, but have strong reasons for believing it obtains not at all rarely throughout this entire region up to an altitude of at least 5000 feet.

76. **Micrathene whitneyi.** ELF OWL.—This species is decidedly the commonest Owl breeding in this region, and is, at least during the breeding time, very abundant. I have found it at all the points where I have collected up to an altitude of 5000 feet. While it seems particularly to like the Woodpecker holes of the giant cactus, I found it on one occasion breeding in a deserted Woodpecker's nest in a mesquite tree. The eggs range from two to four in number, and once I took five from the same nest. The ordinary number is three. On one occasion while collecting with Mr. F. Stephens, near Fuller's Ranch, about the last of May, 1883, we secured with no particular exertion, over twenty of the birds and a dozen or more nests of eggs, in about six hours. I give this so that an idea of their abundance may be had. They frequent holes only when breeding.

77. **Geococcyx californianus.** ROAD-RUNNER.—A common resident up to an altitude of 4000 feet; and in the warmer months and early fall they are often to be found as high as 5000 feet, and even a little higher, thus going well into the evergreen oak belt. While perhaps more abundant on the plains, I found them in the Pinal and Catalina Mountains, and in the latter locality they bred commonly.

From my notes I take the following abbreviated data in regard to some of the various nests found on the San Pedro slope of the Catalina Mountains.

March 17th, 1885. Altitude, 3000 feet. A nest in a cholla, three and a half feet from the ground. A very compact and well built structure, looking much like the common Crow's nest as found in the East, except that the loose outer part of twigs is not so bulky as in that species. The inner structure is lined with grasses and cow and horse dung. The nest contained two fresh eggs, and the birds had evidently not finished laying. This is the earliest date that I have found the species breeding in this region.

March 23, 1885. Altitude, 3200 feet. Found an unfinished nest in a cholla 2 feet 6 inches from ground. Visiting the same nest on 25th March, it was finished and contained two fresh eggs. Structure identical with that found on 17th March. On the 27th it contained four fresh eggs, which I secured.

March 28, 1885. Altitude, 3400 feet. Nest in cholla, two feet from the ground. Similar to nest of 17th of March, being built of same materials. Contained, when found, two fresh eggs. On April 1 it contained six eggs and the parent bird was sitting.

I have data of other nests built at considerable height, the greatest being rather more than fifteen feet from the ground, and though a preference seems to be shown for building in the chollas, yet I have found nests in almost all the varieties of trees that grow in the region frequented by the birds. The greatest number of eggs found in one nest is eight. The males share the duties of incubation with the females and show quite as great concern in the care of the young.

[Mr. Scott's collection contains a series of five young of different ages. These show that the first or nestling plumage differs little from the adult stage, except in being softer or more fluffy and downy. In the youngest specimens, apparently not many days old, the clothing feathers are tipped with a white hair-like appendage, one-fourth to half an inch in length. These hair-like tips soon fall off, only a very few remaining on specimens nearly ready to leave the nest. The chief difference in color consists in the broad shaft stripes of the feathers of the neck and breast being less sharply defined in the young than in the adult, and in the brown edgings bordering the shaft-stripes being paler.—J. A. A.]

78. **Coccyzus americanus.** YELLOW-BILLED CUCKOO.—Rare during the months of June and July on the San Pedro slope of the Catalina Mountains, ranging as low as 4000 feet. The only specimen collected is an adult male (No. 500), taken July 4, 1884, at an altitude of 4000 feet.

79. **Trogon** ————? —A species of Trogon undoubtedly occurs casually in the Catalina Mountains. A laborer who had manifested considerable interest in my collections, described to me a bird he had seen only a few hours before, which he believed "was a kind of bird of paradise." He said it was quite tame, allowing him to approach closely. "Had a very long brilliant tail, and was bright pink on the breast." This was on September 20, 1884, and about a mile from my house. Subsequently two other men saw the same or a similar bird.

80. **Ceryle alcyon.** KINGFISHER.—A resident species. Met with at the several points where I collected, but it retires from the mountains in the winter. It is a curious fact that the species is frequently to be found in this region far from water, feeding on the larger insects and lizards. It always seemed strange to meet the bird under 'desert' conditions.

81. **Dryobates villosus harrisii.** HARRIS'S WOODPECKER.—Resident in the pine forests, and a winter visitor to the lower altitudes, though I believe thus far it has not been detected about Tucson. It generally made its appearance about my house (altitude 4500 feet) early in November, and

was rather common until the last of January. On my visits to the pine woods, both of the Pinal and Catalina Mountains, I have always found it rather common.

82. **Dryobates pubescens gairdnerii.** GAIRDNER'S WOODPECKER.—A rare species, apparently, which I have only met with in a single locality. This was on the Gila River, near Riverside, in April, 1882, where I took a single male, the only one seen.

83. **Dryobates scalaris.** TEXAN WOODPECKER.—Common in all the localities visited. Limited in its upward range on the mountains to about 5000 feet; not at all common above 4000 feet. On the plains, especially in the mesquite parks, it is very common, and it also affects the cholla region. Here I have frequently met with the species digging in the ground at the roots of a cactus. They are at times gregarious. I particularly noticed this in December, 1885, when I frequently met the species in flocks of from four to a dozen, on the plains at an altitude of 3000 feet. I have found the species breeding in May at an altitude of 3500 feet. On May 27, 1884, I found a nest in a mesquite tree. The opening to the nest was fourteen feet from ground. Eggs, five, nearly ready to hatch.

84. **Dryobates stricklandi.*** STRICKLAND'S WOODPECKER.—The only point where I have met with this species is in the oak region on the San Pedro slope of the Catalina Mountains. Here, except in midwinter, it is not uncommon, and Mr. Brown has found it common in the Santa Rita Mountains. I have never found it so commonly as Mr. Henshaw did in the Santa Ritas, nor have I found it gregarious, as described by Mr. Henshaw. Rarely have I met with more than two in company, and a family, two parents and three young, were the most I ever saw associated together. But I frequently met in the fall a party composed of Arizona Jays, California Woodpeckers, various Titmice and Warblers, and a pair of Strickland's Woodpeckers. The birds where I have met with them appear late in January or early in February, and are apparently already mated. A nest found on the 27 of May, 1884, was in an oak about ten feet from the ground. The nest was much like that of the Hairy Woodpecker, save that the opening was a little smaller. It contained three young birds about two-thirds grown and half feathered. The young birds have at first a full red cap on the head, without regard to sex, though it is perhaps more

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* [In 'The Ibis' for April, 1836 (pp. 112-115) Mr. E. Hargitt considers the *Picus stricklandi* of Malherbe, from Mexico, to be specifically distinct from the Arizona Woodpecker, hitherto so-called. He therefore names the Arizona bird *Picus arizonæ*, and gives the following diagnosis:

"*P.* similis *P. stricklandi*, sed dorso uniformi nec albo-fasciato distinguendus.

"*Hab.* In montibus 'Santa Ritâ' dictis in Arizona."

D. stricklandi is said by Mr. Hargitt to have "the upper parts barred with white, whereas in the Arizona bird the back is perfectly uniform in both old and young."

In addition to Mr. Scott's remarks respecting the red cap in the young, it may be remarked that in his series of 21 specimens, about one-fourth of them show more or less distinct white bars on the rump, irrespective, apparently, of sex or age. In some examples these bars are quite conspicuous; but none of them show any white bars on the interscapulars.—J. A. A.]

conspicuous in the young male. This gradually disappears with the first moult, though I have taken young birds in October that still showed traces of the red cap.

85. **Sphyrapicus varius nuchalis.** RED-NAPED SAPSUCKER.—So far as I am aware, this species is migratory and does not breed in the area under consideration. Nor do many remain here during the winter months. They begin to arrive early in September in the Catalina region, and are at first mostly young birds of the year. During the months of October and November they are particularly abundant, but are rarely seen in December or January, and though to be found in the succeeding spring months, February, March, and April, they are not nearly so common then as in the fall.

Many of the adult birds have, in addition to the red nuchal band, characteristic of the subspecies, a greater or less amount of red on the sides of the head and on the face.

86. **Sphyrapicus thyroideus.** WILLIAMSON'S WOODPECKER. — This species I have found only in the pine region of the Catalina Mountains. Even there it is not common and is chiefly to be met with in fall, winter, and very early in the spring. I did not find it in the pine woods of the Catalinas in April, and do not think it breeds there.

87. **Melanerpes formicivorus bairdi.** CALIFORNIAN WOODPECKER.— Common and resident in the mountain regions, both in pines and oaks, as low as 4000 feet. It was abundant in the pine woods of the Pinal Mountains late in November, 1882. And it was among the more conspicuous species in the pine forests of the Catalinas. The only record I have of its breeding is in the Catalina Mountains, where I took a nest containing three young, half-grown, on July 30, 1884. This was at an altitude of 4700 feet. The nest was in a sycamore tree, fifty feet from the ground, in a natural cavity caused by decay. The entrance was where a small branch had been broken off, leaving a natural opening.

88. **Melanerpes torquatus.** LEWIS'S WOODPECKER. — An abundant though irregular migrant in the Catalina Mountains at the lower altitudes, and probably breeds in small numbers in the pine woods. If present in the Pinal Mountains it escaped my notice. About my house it generally appeared about the 20th of September, and some years was very abundant. It stays as late as April 20, and then is not seen again till fall, though I have seen the species in the pine region above me late in the spring. In 1884, there was an unprecedented abundance of the species throughout the entire region under consideration. They came in countless numbers about the ranches, both on the San Pedro and near Tucson. Arriving early in September, they did great injury to the fruit crops raised in these regions, and I heard much complaint of them. In the oak woods they were equally abundant, living almost altogether on acorns, but spending much of the warmer portion of the day catching insects on the wing, very much as any of the larger Flycatchers do, only that on leaving the perch of observation or rest, the flight is much more prolonged than in the Flycatchers that I have seen.

[A series of eight young birds, partly in nestling plumage, show that the young in first plumage not only lack the divided, bristly tips to the feathers of the narrow nuchal collar and lower plumage, so characteristic of adult birds, but differ also from the latter notably in color. In the nestling plumage the whole upper surface of the head, including the hind head, is dull, dusky brown, with a trace of reddish on the forehead, but without greenish gloss or any metallic tints. The back and upper surface of the wings are bronzy green nearly as in the adult, with, however, in addition, broad bars of steel-blue on the scapulars and quills. These bars are especially prominent on the secondaries and inner vanes of the primaries, and are seen also in some specimens on the rectrices. The steel-blue edging the outer vanes of the quill feathers in the adult is absent; and the inner secondaries and longest primaries are tipped more or less prominently with white. The throat, fore-neck and breast are dusky-brown, varied with dull brownish white; sides blackish brown, washed with dull brownish white, the latter often prevailing; abdomen washed with dull red, this color sometimes extending forward over the breast. The forehead, cheeks, and region about the eye mixed dark red and blackish.

The specimens before me present considerable individual variation, irrespective of sex, some lacking wholly the white tips to the remiges; in some the steel-blue bars crossing the quills are not strongly defined; and the amount of red on the lower surface varies greatly.

With the beginning of the first moult the bristly tipped feathers become sprinkled through the breast plumage, and metallic tinted feathers appear on the head, producing a peculiar mottled effect.—J. A. A.]

89. **Melanerpes uropygialis.** GILA WOODPECKER.—A common resident, especially in the giant cactus regions, and occurs in numbers up to an altitude of 4500 feet. Their occurrence at this altitude seems to be coincident with the regular fall migration, as I have not noticed the species about my house in summer, though they are rather common in fall and spring, and are common at all times up to an altitude of 3000 feet. Though breeding in mesquite and cottonwood trees, they show a great preference for groves of giant cactus, which afford nesting places for thousands of pairs about Tucson, Florence, and Riverside. Near Tucson I have taken many sets of fresh eggs, from three to five in number, from May 15 until the last of the month. They do not always excavate new nesting holes in the giant cactus, but more frequently take advantage of some former nesting place. Besides their preference for this cactus in nesting, they are very fond of the fruit of this and other cacti, and frequent the plants in very large numbers at the time the fruit ripens.

90. **Colaptes cafer.** RED-SHAFTED FLICKER.—Common throughout the region, except during the breeding season, when most if not all the representatives of the species retire to the upper oak and pine forest regions, rarely being seen in summer lower down than about 6000 feet. In the series that I have collected are a number of individuals having, to a greater or less degree, the peculiar plumage of the so-called '*hybridus*.' I found the birds about to breed in the pine region of the Santa Catalina Mountains during the last week in April, 1885.

91. **Colaptes chrysoides.** GILDED FLICKER.—A rather common resident wherever the giant cactus occurs throughout the region, but is much more common in the giant cactus of the southern part of the area under consideration than to the northward. They are common all about Tucson in such localities as I have indicated, but are more rare in the San Pedro Valley. I have met with the species in early spring and fall on the San Pedro slope of the Catalinas as high up as 3000 feet. I have now and then seen single individuals in the mesquite timber, far away from any giant cactus. All that I have ever met with breeding have been in giant cactus. The breeding time about Tucson is from April 10 until the last of May. Unlike the other Flickers that I am aquainted with, the number of eggs is small, varying from two to five, which latter is the largest number I have ever found in a nest. I have in a former paper described a so-called hybrid between this species and the Red-shafted Flicker (*C. cafer*). The bird was taken by Mr. Herbert Brown, near Tucson. (For details see 'The Arizona Daily Star,' Tucson, December 16, 1884.)

92. **Antrostomus vociferus arizonæ.** STEPHEN'S WHIP-POOR-WILL.—On the evening of the 16th of April, 1885, I heard a Whip-poor-will, which I was unable to get. The note was somewhat harsher than that of the true Whip-poor-will of the East, but the same in cadence. I can only refer it to this species. This was at a point near my house in the Catalina Mountains, and is the only time I have met with the bird.

93. **Phalænoptilus nuttalli.** POORWILL.—An abundant migrant. It breeds in the mountain regions but, so far as I am aware, does not occur much below an elevation of 3000 feet. They arrive from the middle to the last of February in the Catalinas, and are in full song at the time of arrival. I have heard them singing as late as November 10, which is the latest record I have of their stay in the Catalinas. (For the occurrence of the species at the higher altitudes, see Auk, Vol. II, No. 4, p. 256.) These birds are frequently to be heard singing in the daytime and my records of this are numerous. "Catalinas, 4000 feet, 15th July, 1884. Bright sunshine. Heard a *Phalænoptilus nuttalli* singing continuously from 12 M. till 12.20 P.M." I have similar records of singing in the forenoon and afternoon, and usually the birds begin singing before it is dark.

94. **Chordeiles virginianus henryi.** WESTERN NIGHTHAWK.—Met with a few times in the early spring in the Catalinas at an altitude exceeding 4000 feet. Not observed at other times of the year, and apparently uncommon at any time.

95. **Chordeiles texensis.** TEXAN NIGHTHAWK.—An abundant migratory species, below an altitude of 4500 feet. Breeds commonly. About Tucson this species is particularly common during the months of May and June, and I observed it at Florence and Riverside all through the summer months and early in October. I have also notes of their occurrence, though by no means so commonly, both in the Catalina and Pinal Mountains, up to the altitude indicated above. In the Catalinas I found a pair breeding May 20, 1885, at an altitude of 3500 feet.

96. **Chætura vauxii.** VAUX'S SWIFT.—The only time that I have met

with this species was early in October, 1884, on the San Pedro slope of the Catalina Mountains, at an altitude of 3000 to 4000 feet. From the 2d to the 6th of the month they were rather common, from a dozen to twenty being noted each day. The birds are, as far as I am aware, very like the common Chimney Swift in general habits and flight. Mr. Allen has very kindly identified the species for me, from a female (No. 996) taken October 2, 1884, in the locality above mentioned.

97. **Micropus melanoleucus.** WHITE-THROATED SWIFT.—An abundant migrant, and a few probably occur in winter. I have no positive record of its breeding in the area in question, but have constant records of seeing the species in the Catalinas, from the middle of March until August. The bird is probably most abundant about the middle of May in the vicinity of Tucson, at which time I have seen them by hundreds. Here at this season they do not appear to have the habit of high flight so noticeable in Colorado and at other points where I have met with them, but are to be seen skimming low over ponds, and even close to the ground, in pursui of insects, and quite as tame and unsuspicious as the Chimney Swift of the East. That a few are winter residents there can be little doubt, as my records mention them every month in the year, save February, either in the Catalinas or near Tucson. On January 5 of the present year, which is about midwinter in this region. I saw five in the foothills of the Catalina Mountains, at an altitude of about 3500 feet.

98. **Trochilus alexandri.** BLACK-CHINNED HUMMINGBIRD.—A common summer resident in the Catalina Mountains, where it breeds very commonly. Arrives early in March, and is abundant by the last of that month. By the last of April the birds are mated and begin breeding; and I have found nests with fresh eggs late in July and early in August. By the 10th of October they have all left the region in question.

Though I have found many, at least a hundred, Hummingbirds' nests in the Catalinas in vicinity of my house, and have been very careful to identify the owners, and though most of the species to be presently mentioned are quite as abundant as *Trochilus alexandri*, and though two at least (*T. latirostris* and *T. costæ*) are present all the time that *T. alexandri* is found, yet I have no positive record of any other Hummingbird breeding in this immediate locality.

I have not found this species to be of common occurrence above 7000 feet altitude in the Catalina Mountains. It is common and breeds in the neighborhood of Fort Lowell, which is North of Tucson, and lies at about the same altitude, but Mr. Brown regards it as rare about Tucson, and has no record of its breeding there.

99. **Trochilus costæ.** COSTA'S HUMMINGBIRD.—My first acquaintance with this species was made at Riverside in April and May, 1882. The birds were not very common there, but were the only Hummingbirds observed. On May 5, 1882, I found a nest, the female sitting, and the very conspicuous male in close attendance, often perching on a twig but a few inches away. This nest was built in a cottonwood tree, almost at the extremity of one of the branches, and about thirty-five feet from the ground.

In 1884 I did not meet with the birds in the Catalinas till late in July, and then only sparingly. But in 1885, in the same locality, the birds were very common by April 5, particularly the males, in the most gorgeous plumage. The absence of adult females for the next six weeks was very noticeable. I think I took only three, though the males were common all the time. About the 20th of May young birds of the year began to be abundant, and adult birds of either sex were difficult to find. The young birds were common all through June; I could often count twenty near my house, but after June 1 I was unable to get any adult birds of either sex. I do not think the birds bred in the Catalinas, but think that probably they did breed in numbers on the San Pedro River.

100. **Trochilus anna.** ANNA'S HUMMINGBIRD.—The only time that I have met with this species was in the Catalina Mountains at an altitude of 5000 feet, when on October 1, 1883, I took a male bird, young of the year (No. 420 of my collection). Mr. Brown has no records of its occurrence about Tucson at any season, and I am disposed to regard it as a rare species throughout the area under consideration.

101. **Trochilus platycercus.** BROAD-TAILED HUMMINGBIRD. — Rather common spring and fall migrant, and a few remain during the summer, doubtless breeding in the higher altitudes of the Catalinas. All of the birds collected by me in the region about my house, even in spring, are either females or males that have not assumed full plumage. The birds seem to be most common in the Catalinas from August 20 to September 10, and a few remain till October 1. They arrive here in the spring about April 1. The species doubtless occurs, at least during the migrations, throughout the entire area, though my only notes are from the Catalinas.

102. **Trochilus rufus.** RUFOUS HUMMINGBIRD. — Not common in spring, but young birds of the year begin to appear about the middle of July, and by August 1 are common. In August and September they are very abundant, feeding on thistles and a kind of scarlet flower very similar to the salvia or scarlet sage. It is no uncommon sight at such places and times to see from twenty to fifty of the birds at once. They leave early in October. I have taken very few adult birds of this species at any season, and only one male in full plumage in a large series. These observations are based on data accumulated in the Catalina Mountains: altitude 4000 to 6000 feet. There can be little doubt that the species breeds, perhaps commonly, at the higher altitudes in these mountains.

103. **Trochilus alleni.** ALLEN'S HUMMINGBIRD. — The only record that I am aware of, of this species from the territory of Arizona, is an adult male (No. 589) taken in the Catalina Mountains at an altitude of 4500 feet, July 23, 1884, and now in the collection of the American Museum of Natural History at Central Park, New York City.

104. **Trochilus calliope.** CALLIOPE HUMMINGBIRD. — This species seems to be of uncommon occurrence in the area under consideration. I have only two records of its capture, both in the Catalina Mountains, at an altitude of 5000 feet. These are both females, apparently adult (No.

730. ♀ad., 12th August, 1884; No. 2141, ♀ad., 14th April, 1885). Mr. Brown has not met with this species about Tucson nor at other points visited by him.

105. Iache latirostris. BROAD-BILLED HUMMINGBIRD. — During the spring, summer, and early fall of 1884 this was a rather common species in the Catalina Mountains, from an altitude of 3500 to 5000 feet, but in the corresponding season of 1885 the birds were apparently rare. The birds arrive at this point early in April, the 5th of that month being my earliest record, when I took two adult males. They remain throughout the spring and summer, leaving from the middle to the last of September. I took an adult female on June 26, 1884, that contained an unlaid egg with shell nearly formed, so that there can be little doubt that the birds breed at this point. Besides, I have the young birds in first plumage from July 1st until late in August.

[Young birds of the year, of both sexes, have the upper plumage edged with fulvous, particularly on the head and lower back. The young males have an oblong blue patch on the throat, each feather of which is edged with dark gray, like the rest of the lower plumage, with sometimes a few metallic green feathers on the sides of the breast. In one specimen (No. 703, August 9, 1884) the breast is about half-covered with metallic feathers. —J. A. A.]

BIRD NOTES FROM LONG ISLAND, N. Y.

BY WILLIAM DUTCHER.

1. **Megalestris skua.** SKUA.—Mr. M. F. King, one of the crew of the Life Saving Station at Amagansett, Suffolk Co., sent to me, in the flesh, a specimen of this species. He informed me that he found the bird March 17, 1886, in a large piece of ice which had formed on the meadow back of the beach. He also stated that January 9, the tides were exceedingly high, by reason of a very severe northeast storm and gale of wind. He thought the bird probably died near the shore and was driven by the very violent surf and wind to where it was found. The high tide was followed immediately by very cold weather, which encased this bird in its icy tomb, thus preserving it until found, and permitting a new record for Long Island and the third and most southern one for North America.* Mr. King stated further that

* The previous records may be found in Bull. Nutt. Orn. Club, III, 1878, p. 188; Auk, I, 1884, p. 395.

no ice was driven on the beach during the past winter, therefore the bird must have died while on or near the beach. It is probable that it died of starvation, as it was very much emaciated. The sex could not be determined, as the viscera had commenced to decompose.

2. **Sterna fuliginosa.** SOOTY TERN.—To my friend Mr. Charles Earle, of New York City, I am indebted for the privilege of adding still another bird to the Long Island list. The month of September, 1878, was spent by him at Lake Ronkonkoma, which is the geographical centre of the island. A very heavy storm occurred on the 13th of that month, during which he shot the Tern here recorded. He informs me that he saw thirty or more Terns but does not recollect of what species. He has no record of the direction or duration of the storm, but remembers that the Terns "were flying diagonally across the Lake from the southwest, and continued their flight toward the Sound. I should certainly conclude from all the conditions of the storm that the birds were carried from their normal habitat by its force. In my two years' wanderings about Ronkonkoma I never observed any Terns before on the lake, although a local gunner told me he had sometimes observed them, but I should say they were stragglers from the coast." As there was no published description of the phase of plumage presented by this specimen I submitted it to Mr. Robert Ridgway, who writes, under date of Washington, January 19, 1886, as follows: "I have carefully examined the Tern, which is undoubtedly *S. fuliginosa*, and is a young bird apparently in its second year. It is in moult, and a very singular thing is that the new feathers appearing on the breast and other lower parts are darker than the old plumage. From this I infer that another moult would be necessary—probably during the following spring, but possibly not until the next autumn—before the white plumage of the adult would be assumed. It is possible the feathers themselves might eventually fade to white, but I regard this as hardly probable. I send a description, as requested."

"*Sterna fuliginosa*. A young bird in transition plumage (apparently in second year) from Lake Ronkonkoma, Long Island (Sept. 13, 1878, Charles Earle, collector), differs from the young in first plumage as described in 'Water Birds of North America' (Vol. II, pp. 312, 313) as follows: The rather light sooty brown plumage of the lower parts is much mixed or clouded with a darker and less brownish sooty tint, these dark feathers

(belonging to the new dress, just being assumed) having the whole of their underlying portion grayish white, this color showing through wherever the plumage is disarranged. The upper and lateral portions of the head are clouded with blackish (new feathers). The wing-coverts and tertials are entirely destitute of the white terminal bars of the first plumage, the general surface of the wing being dark sooty brown, mixed with new feathers of a decidedly darker color, these prevailing over the anterior portion of the lesser covert region, where contrasting very boldly with the broad and very distinct white border to the fore arm and bend of the wing. The old feathers of the back and scapulars are sooty brown, without white tips (the latter being worn off?); the new feathers, which largely prevail, are dark brownish slate, with a chalky cast in certain lights, bordered terminally with ashy white—these lunulate markings being very different from the much broader, much more distinct, and directly transverse white tips of the first plumage. The lateral rectrices are much more elongated and attenuated than in the first plumage, but less so than in the adult; in color they are much like those of the latter, being white for the basal half or more, passing gradually into grayish dusky toward the end, the tip again grayish, especially on the outer web. Lining of the wing grayish white, becoming nearly pure white on the longer axillars, clouded faintly with light sooty gray toward the anterior and outer border of the wing. Anal region abruptly grayish white; crissum and lower tail-coverts grayish white or pale gray, the feathers with darker tips. Wing, 11.20; tail, outer rectrices, 5.40, middle rectrices, 3.50; culmen, 1.60; gonys, .80; tarsus, .95; middle toe, .80."

3. **Histrionicus histrionicus.** HARLEQUIN DUCK.—Mr. Knoess informs me that during the time he has been engaged as a taxidermist at Riverhead, he has mounted four specimens of this species. I have secured the following particulars regarding the capture of three of them.

Mr. W. W. Reeves, of Greenport, Suffolk Co., writes: "I shot the Harlequin Duck in January, 1865, on Gull Island, while I was keeper of the light. There were four of them living around the Island sometime before I had a chance to kill one. The bird I secured was a male. I crippled a female at the same time but did not secure her, as the tide was running so swiftly. They were the first of the kind I ever saw, nor have I seen but two since. They are a diving Duck, and like to play around the rocks. I watched them play several times while they were there; they chased each other about as boys do while playing tag.

"I have gunned over forty years, and as far south as Savannah, Ga., and never saw this Duck anywhere except on the island, so I think it a rare bird."

Mr. Josiah Robbins, of Bayshore, Suffolk Co., writes: "The

Harlequin Duck which I have is a male and was alone when shot. It was killed in the latter part of January, 1883, in the South Bay, opposite Fire Island Inlet. The bay was frozen over at the time, except a few air-holes. It was killed by Capt. Samuel Hulse, who is about fifty-five years of age, and has always followed the bay. He says it is the only one that was ever seen here, to his knowledge."

Mr. George E. Post, of Greenport, writes: "My Harlequin Duck I think is by no means common. They are here only in very cold winters, and even then only a few. The one I have was shot on the shore of Long Island Sound, near the village of Southold. I think it is a male."

Giraud says of this species: "On the shores of Long Island I have known the young only to occur, although some of our most experienced bay-men say that a number of years since the occurrence of the adult was not unusual." *

It is probable, owing to the marked appearance of this bird, that almost all that are shot in this locality, where it is so rare, are preserved, and we therefore in the above records have approximately its numbers in the waters that surround the island.

4. **Ardea candidissima.** SNOWY HERON.—Although these birds are not uncommon on Long Island in the summer months, I do not recall any published notes of their breeding. Mr. L. S. Foster and the writer visited a very extensive pine and cedar swamp on Great South Beach, off Sayville, Suffolk Co., May 30, 1885, and while there saw three individuals of this species. One was alone, but the others were mated and undoubtedly were preparing to breed. They were watched for some time and were always flying to or from a pine tree in the swamp. All their actions indicated that they were nest building. The one first seen was carrying a long stick in its bill.

5. **Crex crex.** CORN CRAKE.—In the shop of Messrs. Lucas & Buck, of Sag Harbor, I found a mounted specimen of this species, which I purchased. They bought it about August 15, 1885, while in the flesh, from a farmer residing near Amagansett, Suffolk Co. It was, when shot, on an upland or dry meadow, in company with some Meadow Larks (*Sturnella magna*). The sex was not ascertained.

* Birds of Long Island, p. 337.

6. **Crymophilus fulicarius**. RED PHALAROPE.—Mr. G. E. Payne, of New York City, while bay-bird shooting at Shinnecock Bay, September 26, 1885, procured a female of this species in full winter plumage. He presented the specimen to me, in the flesh, and gave me the following note of the capture. "My gunner, Charles Lane, first observed the bird, and concluded it to be a stranger. It was quietly feeding, and although we were quite close, it did not appear to notice us. It was alone. It was pronounced a Phalarope, but none of the members of the Lane family, who are all gunners, remember having seen one like it before."

6. **Phalaropus lobatus**. NORTHERN PHALAROPE.—The only note of this species made by the writer since his record* of the unusual flight which took place in May, 1883, is of one which struck Fire Island Light during the night of May 19, 1884. Wind south south-west, fresh. Weather cloudy.

7. **Phalaropus tricolor**. WILSON'S PHALAROPE.—Mr. G. W. Howell, of Atlantieville, Suffolk Co., shot an individual of this species about August 15, 1885. The writer had the pleasure of seeing it while being mounted at the taxidermist's.

8. **Macrorhamphus scolopaceus**. LONG-BILLED DOWITCHER.—I think that on Long Island this wader may be called a regular, but not common, late fall migrant. September 26, 1884, Mr. F. M. Chapman informed me that he procured three while at Shinnecock Bay. Capt. Lane, of the same place, wrote me that his sons shot three October 6, 1885, and on the next day two more. Mr. E. A. Jackson wrote me that he saw, at Atlantieville, a Dowitcher on the 5th of October, and another on the 9th. They were undoubtedly *scolopaceus*, as the common form is never found in this locality so late in the season. October 9, 1885, Mr. W. F. Hendrickson shot one at Long Island City.

9. **Limosa fedoa**. MARBLED GODWIT.—The 'Brown Marlin' of the Long Island gunners is at the best a rare bird, and is looked on as a prize at any time. My experience in bay-bird shooting on the South Shore, dating back as it does for twelve years, is a blank regarding this species. Not only have I never shot one, but I have never been so fortunate as to hear one utter its call note. Giraud says, "Arrives on the shores of Long Island in the month of May: it cannot be said to be an abundant

*Auk, Vol. I, 1884, p. 33.

species—still, we observe it visits us regularly every spring and autumn."* August 12, 1881, one was sent to me from Shinnecock Bay, by Mr. C. E. Perkins, of Hartford, Conn., an enthusiastic sportsman, who spends many weeks every summer on the beaches and bars of that Indian-named bay. In 1883, Mr. Talmadge, another sportsman *habitué* of Shinnecock Bay, informed me that three Marbled Godwits had been shot between September 1 and 8 by the sportsmen and their gunners who were shooting on the bay.

During 1884 I did not record any. During the spring of 1885, none were seen at Shinnecock Bay, my informant being George A. Lane, who, with his brothers, is shooting every day during the season. The summer and autumn of the same year produced four, and possibly five, records as follows: August 25, one was shot by Mr. W. M. Lawrence, a sportsman who was located at Atlanticville, a hamlet near the western end of Shinnecock Bay. August 31, two were seen at the same place by L. E. Howell, a resident gunner. The same day one was seen by Mr. Perkins, some two miles further east. It was in all probability one of the pair seen by Mr. Howell. September 15, Mr. Perkins reports one seen and secured.

11. **Limosa hæmastica.** HUDSONIAN GODWIT.—The 'Ring-tailed Marlin' of the gunners is much more often seen than its congener, contrary to the record left by Giraud, who states, "This bird with us is not as plentiful as the former. A few are shot every season on the shores of Long Island."† September 12, 1882, I recorded five at Shinnecock Bay, and on October 5, four from near Babylon, Suffolk Co. During 1883, September 1 to 8, Mr. Talmadge sent me records of six seen at Shinnecock Bay. During 1884 Mr. Perkins sent me the record of one shot August 8 at the same place. On the 25th of the same month I received the record of one shot at South Oyster Bay, Queens Co., and on the 29th of August Mr. N. T. Lawrence furnished me with the record of two which were seen at Rockaway, Queens Co., one of which was secured. Mr Talmadge shot two at Shinnecock Bay; the first September 19, the second on the 24th. During the spring of 1885, George A. Lane notes their entire absence in his locality. The first record

* Birds of Long Island, p. 260.

† *Ibid.*, p. 261.

of the fall migration was by Lane, who saw two August 26. Mr. Perkins shot two between September 7 and 12. Subsequently five more were shot on various points and bars on Shinnecock Bay, the latest record being one secured October 9, by Mr. E. A. Jackson, a gunner resident at Atlanticville.

12. **Vanellus vanellus.** LAPWING.—Early in December, 1884, I heard a rumor that a strange bird had been shot on Long Island. After some extended inquiry I traced it to the possession of Mr. C. H. Lott. In reply to a communication on the subject, I received the following: "Merrick, L. I., December 18, 1884. The birds to which you refer (European Lapwings) were seen here in the month of December, a day or two after Christmas of last year, 1883. It was just after the severe northeast snow storm that we had at that time. One was shot and preserved by my son, C. H. Lott, Jr. The mate remained about the place for two or three weeks after and then disappeared. In the meantime it had been shot at several times, but was not captured, so far as I know. It seemed to get very wild after its mate was shot." Having ascertained from Mr. Lott the name of the taxidermist who mounted the bird, I wrote asking its condition when it was brought to her. Her husband replied as follows: "The bird you have reference to was not a bird that had been caged. It was a wild bird." January 1, 1886, I visited Mr. Lott at his residence and made a careful examination of the bird. I could find no evidence that it ever was other than a wild bird. Its plumage and legs were clean and in no degree cage-worn or stained. I also visited the taxidermist, who was positive that it had never been caged. From all the circumstances in the case I can but conclude that the record is a good one, and I therefore have decided to make it public, and claim it not only as the first record for this species on Long Island, but also on the continent of North America below the 60th parallel of latitude.

13. **Ægialitis wilsonia.** WILSON'S PLOVER.—Since the record I made in 1879* I have been able to secure only one specimen of this Plover on Long Island. May 16, 1884, Mr. G. A. Lane shot one at Shinnecock Bay, which he sent to me. It was a female and some of the ova were materially increased in size. It was in company with some Turnstones when shot. Nelson Verity, of South Oyster Bay, Queens Co., a professional gun-

* Bull. Nutt. Orn. Club, Vol. IV, p. 242.

ner, recognized a description of this species and said that he had shot them at long intervals.

14. **Hæmatopus palliatus.** AMERICAN OYSTER-CATCHER. —As long ago as Giraud's time this bird was considered rare, as he says of it, "With us the Oyster-catcher is a rather scarce bird . . . . Its occurrence with us is so seldom that I have not had an opportunity of observing its habits as closely as I should wish." * It is probably now even more rare than it was then. In the early part of June, 1882, I saw a pair of these birds in the shop of a taxidermist on William St., N. Y. He claimed that they had been shot at or near Greenport, Suffolk Co., a few days previous, although the name of the shooter could not be given. The record although somewhat obscure, is probably correct. During an outing on Long Island in April, 1886, I found in the possession of Mr. Squires of Ponquogue, Suffolk Co., a specimen of this species. It was shot on a salt meadow, near the beach, about March 9, 1880.

15. **Cathartes aura.** TURKEY VULTURE.—Mr. Knoess, of Riverhead, informed me that he mounted a specimen of this Vulture, August 15, 1877, for Mr. James A. Johnston, of Brooklyn. Mr. Benj. B. Johnston, in whose possession the bird now is, informs me that his brother shot the bird "one mile from the village of Greenport, Suffolk Co., on the north road."†

16. **Strix pratincola.** AMERICAN BARN OWL. — Mr. Giraud‡ does not include this Owl in his list of Long Island birds, and Mr. G. N. Lawrence§ simply says, "Barn Owl, rare." An instance of the breeding of this Owl on Long Island has recently been brought to my notice by Mr. Langdon Gibson, of Flushing, Queens Co., as follows: "May 30, 1883, Mr. C. D. Gibson caught four young Barn Owls in the steeple of the Congregational church in Flushing. On his reaching the staging where the young birds were, one of the parent birds, the only one present, flew out of the broken window and escaped. The young birds crowded up into one corner and made a peculiar

* Birds of Long Island, pp. 222, 223.

† A later Long Island record may be found in Forest and Stream, Aug. 19, 1886, p. 64.

‡ Birds of Long Island, 1844.

§ Catalogue of Birds observed on New York, Long, and Staten Islands, and the adjacent parts of New Jersey. Ann. N. Y. Lyc. Nat. Hist., VIII, p. 281, April, 1866.

hissing sound. The floor on which they were was in a filthy condition, covered with pellets, and dead rats and mice in all stages of decomposition. There was also one young muskrat and some moles. The young Owls appeared to be of different ages, no two being of the same size. They were afterwards confined in a cage near my house, which was about a mile from the church. They kept up such a screaming that the old bird found and afterwards visited them every night at dusk. They were kept caged until early winter when they died, apparently without cause."

17. **Nyctala acadica.** SAW-WHET OWL.—Giraud says of this Owl, "With us it is quite rare." * My notes as given below would indicate, on the contrary, that it is common, at least in the winter months. December 6, 1884, Capt. Hubbard, of the Fire Island Life Saving Station, shot one on the beach, which he sent to me. One was sent to me from Merrick, December 31, 1884. Mr. W. F. Hendrickson, of Long Island City, one of my most earnest and reliable observers, writes me regarding this species as follows: "November 15, 1884, saw one with a gunner who had killed it near Train's Meadows, Queens Co. December 27, my brother found one, a female, at Ravenswood, Queens Co., which had been frozen. November 4, a friend shot one at Creedmore, Queens Co., and I saw one in his shop which he was mounting for a customer. It was also killed on the island. March 30, 1885, I found the feathers of one scattered about as though it had been killed and eaten by a cat or Hawk." Mr. Franklin, of Port Washington, Queens Co., informed me that on February 28, 1885, a small Owl had flown or fallen down the chimney flue into his library. He caught it alive and afterward liberated it. From his description of the bird it was undoubtedly this species.

18. **Calcarius lapponicus.** LAPLAND LONGSPUR.—This boreal species, usually so rare, seems to have been in a roving mood during the winter of 1884–85. At Far Rockaway Beach, Queens Co., February 7, 1885, while on a collecting trip with Dr. A. K. Fisher, one was secured by him as it was flushed from the short beach grass where we were looking for Ipswich Sparrows. February 26, 1885, several flocks of from six to ten individuals were found by Mr. W. F. Hendrickson on some filled-in

* Birds of Long Island, p. 23.

roads, running through what was formerly a swamp, in the upper part of Long Island City, Queens Co. They were in company with a few Snowflakes and Horned Larks. Two days later he saw a few scattered Longspurs and one mixed flock of Longspurs, Horned Larks, and a few Snowflakes. This flock, he says, contained about twenty or twenty-five Longspurs. They were very wild and difficult of approach. Four were secured and preserved. All were males and were in good condition. This Arctic wave must have been receding, as no more were seen, although Mr Hendrickson carefully looked for them in the same and other localities many times subsequently. As from a receding wave one often sees a fleck of foam left lightly resting on the beach, so must this bird-wave have left one of its number on the Hempstead Plains (Queens Co.), where it was found and shot by Mr. A. H. Hawley, April 18, 1885.

19. **Ammodramus princeps**. IPSWICH SPARROW.—On Long Island I think this species is a regular winter resident on the barren sand beaches of the South Shore. It can undoubtedly be found from the middle of October till the first of April. Although this bird is a winter resident in numbers, yet some must migrate further south, as Mr. J. Dwight, Jr., found them at Rehoboth Beach, Delaware, November 22, 1884 (Auk, Vol. II, p. 105). It may be that the 120 miles of coast line of Long Island is their southern winter range, below which, however, a few may straggle. In addition to the Long Island records already published I will add the following, which will extend the time of their residence on the island materially. Charles Carter, of Shinnecock Bay, wrote me October 20, 1884, that he had seen but one *princeps* this fall; that on October 12. There can be no doubt of Mr. Carter's identification of the bird, as he is very familiar with the species, having shot and sent to me a large number of them from time to time. He is a keen and reliable observer, and I am indebted to him for many valuable notes and rare birds. Very early in November he commenced to send me specimens of this species and continued to do so at intervals all winter. February 7, 1885, Dr. A. K. Fisher and myself secured eleven during a walk of two miles on the beach at Rockaway, and saw at least three individuals which we did not get. On the same ground, the 23d of the same month, Mr. L. S. Foster and myself shot thirteen and saw probably as many more. Of these the

genital organs of some of the males were quite sensibly increased in size, and of some received March 19 they were quite markedly so. Some of these last specimens were in the midst of the moult. April 1, I received from Mr. Carter two specimens, the stomachs of which were filled with small black insects. This was the first instance where I had found anything but vegetable matter used for food. All of the stomachs examined before contained, so far as I could determine, seeds. Mr. N. T. Lawrence kindly permits me to record one shot at Far Rockaway Beach, April 3, 1885. He thinks he saw another the same day. Hereafter this species will have to be relegated to the commonplace, and not worthy of special record on Long Island.

20. **Spizella pusilla.** FIELD SPARROW.—Mr. S. B. Strong, of Setauket, Suffolk Co., N. Y., brought me a fine specimen, which he had shot on his farm January 31, 1885. It is worthy of record, as its stay must have been voluntary, there being no evidence on the bird itself to lead me to believe that it had been hurt or disabled in any manner.

21. **Piranga rubra.** SUMMER TANAGER.—While at Sag Harbor recently I found among some mounted birds in the shop of Lucas & Buck, an adult specimen of this species which was shot some time in May, 1885, near the village of Bridghampton. Mr. Ivan C. Byram, of Sag Harbor, wrote me that on April 7, 1886, a friend shot a strange bird. It was unfortunately eaten by a cat, which did not know its value as a specimen. From the description given of the bird I have no doubt but that it was correctly identified by Mr. Byram as a Summer Tanager. Mr. Albert Lott, of Merrick, Queens Co., sent one to me for identification. He wrote that it was shot by a neighbor, May 14, 1886. At the time it was killed it was near his hives catching the bees. It did not eat any portion of them except the head. It had been about the place for three or four days.

22. **Thryothorus ludovicianus.** CAROLINA WREN.—Giraud says of this bird: "Occasionally during the summer months, this large and musical Wren is seen on Long Island."* The later published records for the country lying east and north of Long Island are for the summer months, with the notable exceptions of the record made by Mr. H. A. Purdie†, of Boston,

* Birds of Long Island, p. 75.

† Bull. Nutt. Orn. Club, Vol. IV, p. 61.

Mass., of one taken at Saybrook, Conn., November 25, 1878, and by Mr. John H. Sage,* of one taken at Portland, Conn., March 2, 1883. The November specimen was undoubtedly a bird that had spent the summer in the locality where it was secured, and the March specimen may possibly have braved the rigors of a New England winter. It undoubtedly did, as I am now able to present a record of one taken in January, thus confirming that supposition, and showing that although they, as a family, prefer the more genial climate of the Southern States, yet an individual of unusual hardiness is sometimes seen. Mr. John D. Hicks, of Old Westbury, L. I., was attracted, January 30, 1885, by a loud call-note, which resembled, "as near as I can produce it, *kach*,'" and proceeded from a tangled and swampy thicket near his lumber yard at Roslyn, L. I. Proceeding to the place whence the sound issued, he saw the bird on a low willow tree, giving utterance to its peculiar note and acompanying each one with a Wren-like motion. It gave no song whatever, was sprightly, and in good condition, and was busily occupied in looking for food. Not having a gun with him at the time he was unable to secure it, but on the following day (January 31) he found it in a swamp not more than five hundred feet from where it was seen the day before. On both occasions it was in company with a mixed flock of Tree and White-throated Sparrows. The swamp in which it was found is full of springs that very rarely freeze.

23. **Turdus aliciæ bicknelli.** BICKNELL'S THRUSH.—With a number of birds which were sent to me, that had been killed by striking the Great West Bay Light (Shinnecock Bay), Long Island, on the night of October 1, 1881, were four Thrushes, which I labelled *aliciæ*. Quite recently I submitted them to Mr. Bicknell, who pronounced two of them to be undoubted examples of the new variety *bicknelli*. I have therefore the pleasure of adding another bird to the known avi-fauna of Long Island.

24. **Turdus aonalaschkæ pallasii.** HERMIT THRUSH.—A case of the probable breeding of this Thrush on Long Island has come to my notice through the kindness of Mr. Charles Earle, of New York City. On the 23d of September, 1878, near Lake Ronkonkoma, he secured a Thrush of this species in the nest-

* Bull. Nutt. Orn. Club, Vol. VIII, p. 120.

ing plumage, and on the next or the following day another in the same plumage. Both specimens show conclusively that they are very young birds, each being in the undeveloped feather-stage peculiar to altricial birds just leaving the nest. As both specimens were taken in the same neighborhood, it is presumable that they were nest companions, although one is some days more developed than the other. I have shown them to Mr. J. A. Allen, who informs me that he knows of no instance of such immature birds migrating.

THE AFFINITIES OF CHÆTURA.

BY FREDERIC A. LUCAS.

For a long time the Swifts have been debarred from the society of passerine birds and made to associate with those contained in that avian waste basket, termed the order Picariæ. Of late, however, several ornithologists, notably Mr. Sharpe and Dr. Parker, have advanced a plea for their reinstatement in the order Passeres. Latest of these is Dr. Shufeldt who reaches the conclusion* that "the Swifts are essentially modified Swallows, and, as the family Cypselidæ, they belong, in the order Passeres, next to that group."

Notwithstanding the evident care of Dr. Shufeldt's work I must confess myself as unconvinced by the evidence he brings forward and will briefly review the case of *Chætura* as a plea for the continued separation of Swifts and Swallows and the retention of the first named family near the Hummingbirds. I am well aware of the risk I run in opposing my own slight knowledge of the subject to the results of Dr. Shufeldt's more extended studies, and it is with still greater diffidence that I venture to disagree with so distinguished a morphologist as Dr. Parker. Nevertheless, until still more evidence to the contrary is adduced, I will hold fast to Huxley's union of Hummingbirds and Swifts. As for the Caprimulgidæ, there are few, I think, who will object to their

* Contribution to the Comparative Osteology of the Trochilidæ, Caprimulgidæ, and Cypselidæ. Proc. Zoöl. Soc. London, Dec. 1 1885.

being placed in an order by themselves. They are a most attractive group of birds for study, and all that I have examined or seen figured offer good cranial generic characters, which is more than can be said for most birds. In the ensuing comparisons *Trochilus* may be construed as *T. colubris*, while *Chelidon* stands for *C. erythrogaster*, this bird having been chosen simply because its name is a little less formidable than that of most Swallows, and not from any peculiarity of its skeleton.

Before taking up the more salient structural characters, it may be well to say that, viewed in profile, the skull of *Chætura* is very suggestive of *Chordeiles*, while that of *Chelidon* unmistakably resembles that of a Flycatcher. The sphenoidal rostrum of *Chætura* is broad, the palatines are separated from one another, and the pterygoids are in close proximity to the basi-temporal region,* all characters wherein *Chætura* agrees with *Trochilus* and differs from *Chelidon*. This bird has the rostrum narrow, the palatines applied to each other posteriorly, and the pterygoids standing well out from the basi-temporal region, as in the higher Passerines. In *Chætura* the curiously expanded end of the vomer abuts on the maxillo-palatines, with which in young birds it is intimately connected. While this is wholly unlike the sharp-pointed, anteriorly free, vomer of *Trochilus*, and more nearly resembles the typically passerine vomer of *Chelidon*, yet the vomer of *Chelidon* is quite free from the maxillo-palatines, although it overlies them for its entire length. Now, among the Goatsuckers, *Chordeiles* has a slender, pointed vomer, which at first rests upon and later in life coalesces with the united maxillo-palatines, while in *Antrostomus*, and to a less extent in *Nyctidromus*, the vomer is broad and at its free extremity articulates with the maxillo-palatines. Assuredly there is an interesting suggestion of relationship between *Chætura* and the Goatsuckers, and a study of the embryology of the former bird would undoubtedly yield good results. The maxillo-palatines of *Antrostomus* terminate in recurved points which bear a certain resemblance to the slender, curved maxillo-palatines of *Chætura*. In *Chelidon* these bones are expanded at their free extremities, these expansions having the

*Perhaps I over estimatethe importance of this last character, but it is a pronounced feature of many 'Picariæ,' notably of the Woodpeckers and Goatsuckers, less so of the Cuckoos.

same peculiar and characteristic shape in the six species of Swallows at my disposal.*

The maxillo-palatines of *Trochilus* are apparently not prolonged, but it would be unsafe to affirm too postively that such is the case before examining some large species, since, even if present, they would be filamentous in character.

I will touch but briefly on the vertebral column and ribs, as both time and space are wanting for a careful analysis of the characters contained therein. The following table shows the number of vertebræ and ribs in *Trochilus*, *Chætura*, and *Chelidon*, the two *Limosæ* being added to show of how little value is the mere number of vertebræ. *L. rufa* is quoted from Eyton, and while his term 'sacral' includes some presacrals and some caudals, neither the total number of vertebræ nor the proportion of true dorsals and cervicals is thereby affected.

	Trochilus.	*Chætura.*	*Chelidon.*	*Limosa fœdoa.*	*Limosa rufa.*
Cervicals	13	14	13	15	12
Presacrals	8	7	8	11	7
Sacrals	4	3	3	4	15
Caudals, including pygostyle	9	12	12	12	6
Total	34	36	36	42	40
Cervical ribs	1	2	1	2	1
True ribs	8	7	6	8	7

The term sacral is here applied to the *true* sacrals as defined by Huxley and Parker.

According to the above table, *T. colubris* possesses one more vertebra than does *T. alexandri*, while the arrangement of ribs is also different. At first sight the last, free rib seems to be without a corresponding vertebra, but careful examination shows that the last apparent presacral vertebra is really composed of two. Very fortunately there was one specimen of *Trochilus* among my material in which the vertebræ could be clearly counted. Very significant is the fact that the last rib of *Chætura*, like that of *Trochilus*, is imperfect, only the lower moiety with its attached sternal rib being present. A similar condition is found in the Loons, but not that I am aware of in any passerine bird. *Cypselus* is the same as *Chætura* and I venture the prediction that careful dissection will reveal this rib in *Panyptila*.

*In Dr. Shufeldt's figures of *Panyptila* and *Tachycineta* the maxillo-palatines are imperfect.

The free caudals of *Trochilus* and *Chætura* agree in having long, slender, recurved transverse processes, in which particular they resemble the Goatsuckers, and contrast with the Swallows, whose short transverse processes are like those of other Passeres.

A character of great importance is found in the manner in which the ribs join the sternum. In *Trochilus* and *Chætura* they articulate with the *body* of the sternum, while in *Chelidon*, as in all Passeres I have examined, the ribs are attached only to the costal process. In this particular, as in many others, the Goatsuckers more nearly resemble the passerine birds than does *Chætura*. To say nothing of the great depth of keel* possessed by both *Trochilus* and *Chætura*, their sterna agree in having small costal processes and un-notched, rounded posterior borders. In *Chætura*, as Dr. Shufeldt has noticed in *Panyptila*, there are numerous vacuities in the body of the sternum and the upper part of the keel. This is but an exaggeration of the structure found in *Trochilus*, whose sternum is honey-combed by irregular depressions which in many places lack but little of completely perforating the walls of the sternum.

The manubrium is entirely wanting in *Trochilus* and very small in *Chætura*.

In all these particulars *Chætura* and *Trochilus* contrast strongly with *Chelidon*, which has the large Y-shaped manubrium, prominent costal processes, and deeply bi-notched sternum so characteristic of the Passerines.† The sterna of *Chordeiles* and

* Speaking of *Panyptila*, Dr. Shufeldt says (p. 907) "the keel to the sternum is not so deep in comparison with the remainder of the bone as we often find it among Passeres, and in this particular it is not to be mentioned with the extraordinary carinal development of *Trochilus*."

Dr. Shufeldt's eye has certainly deceived him here, for a pair of dividers applied to his figures shows that the proportion of length to depth is very nearly the same in both. As to the matter of carinal development among the Passeres, I must confess myself unable to name one which at all equals *Chætura* or *Panyptila*. At the same time it must be borne in mind that these proportions do not show the true state of the case, since *Trochilus* and *Chætura* have sterna not only unusually deep but unusually long. The relation of depth to length is much greater in the sternum of *Chordeiles* than in *Trochilus*, but the breast bone of *Chordeiles* is a short one. In *Chætura* and *Campylopterus* the proportion of length to depth is identical.

† Among birds the characters afforded by the sternum are so important that I must confess myself a little surprised that Dr. Shufeldt should so readily reject them (see p. 914), when only two pages before he lays stress on the development of the phalanges. The notched or un-notched condition of the xiphoid border is in no way due to physiological adaptation, while the modifications of the phalanges are very largely so caused. Some of the parrots fly well, some very poorly, none at all compare with *Trochilus* or *Chætura*. And yet all (*fide* Huxley) have the sternum un-notched.

Trogon resemble each other closely and are intermediate in form between those just described. In these birds the manubrium is absent, the costal processes large, and the xiphoid border marked with two rounded excavations.

The coracoids of both *Chætura* and *Trochilus* are short and stout, and in both birds these bones, instead of resting in the usual coracoid groove, articulate with a raised oval facet, forming a shallow ball and socket joint. While there is as wide a difference between the coracoids of *Chætura* and *Trochilus* as Dr. Shufeldt points out between *Trochilus* and *Panyptila*, this discrepancy is almost entirely due to the unusual development of the inner edge of the bone in *Trochilus*. This is so great as to make the distal end of the coracoid as wide as the proximal, while the prolongation of the clavicular process and its fusion with the scapular process forms a tendinal *foramen*. There is nothing of this in *Chætura*, but there *is* a good sized foramen corresponding to the lower foramen of *Trochilus*, and the coracoid as a whole is entirely different from the long, slender, imperforate bone we find in *Chelidon* and other typical Passeres. Here, again, *Chordeiles* stands intermediate between *Chætura* and *Chelidon*, the coracoid being moderately stout, but long and imperforate. The furculum of *Trochilus* is widely U-shaped, has an almost rudimentary hypocleidium, is devoid of an anterior process at its articulation with the coracoid, and is so short as to reach but half way to the anterior angle of the sternal keel.*

The furculum of *Chætura* agrees with that of *Trochilus* in all respects save width, and even here it greatly exceeds the corresponding bone of *Chelidon*. The furculum of *Chelidon*, moreover, reaches from coracoid to angle of sternum, has clavicular ends anteriorly expanded, and a large backwardly directed hypocleidium.

The point of the scapula has a downward droop in *Trochilus* that is wanting in that of *Chætura*, but in the nestling of this latter bird the cartilaginous supra-scapula is bent downward at an angle even greater than in *Trochilus*. The curious shape of the humerus in *Trochilus* and *Chætura* is due to the total sup-

* This shortness is not only *apparent* but *real*, and is not due to the depth of keel. Owing to the shortness of the coracoids the furculum of *Chelidon* will reach from scapula to angle of keel in *Chætura*, and that of *Vireo* will do the same for *Campylopterus*.

pression of the shaft, the elongation of the distal head, and the exaggeration of all ridges.* The shortness of the humerus in *Trochilus* is remarkable, but in this particular it is equalled by *Chætura*, while the strange development of the radial ridge in this latter bird is, so far as I am aware, peculiar to the Swifts. The humerus of *Chelidon* is merely that of any typical Passerine a little shortened. *Os humero-scapulare* is present in *Chelidon*, but I have been unable to find it either in *Chætura* or *Trochilus*. This, however, does not signify much, for this little bone is found in such a distant relative of the Passeres as *Steatornis*. *Trochilus* has two anconeal sesamoids; *Chætura*, *Chelidon*, and many Passerines have but one.†

The curious, straight antebrachium of *Chætura* is apparently another peculiarity of the Swifts, and bears no resemblance whatever to the forearm of either *Trochilus*, *Chelidon*, or *Chordeiles*. The radius and ulna of *Trochilus* are strongly bowed outward from one another, an arrangement which probably has some direct relation to the rapidity with which the wing is moved, for the same thing occurs in *Tinamus*, and to a less degree in the Gallinæ, and these birds are noted for their rapid wing beats. The principal bone of the carpus, the ulnare, is very similar in both *Trochilus* and *Chætura*, its inner side being prolonged into a process which overlaps, or underlies the metacarpus. The ulnare of *Chordeiles* resembles that of *Chætura*, but the ulnare of *Chelidon* has the roughly trihedral shape customary among the Passeres. The second metacarpal of *Chætura* is round, as in *Trochilus* and *Chordeiles*, and is very different from the broad, flat metacarpal of *Chelidon*, *Ampelis*, and other passerine birds. Its length in comparison with the ulna is the same in *Chætura* and *Trochilus*.

The first phalanx of the second digit is proportionally much

* A word in regard to variation. Apparently the smaller the bird the more exaggerated the characters of its bones. Thus little *Selasphorus* with its narrow wings has in proportion to its size a more widely forked furculum, a stouter and more rugose humerus, and deeper sternal keel than its larger relative *Campylopterus*.

† The majority of passerine birds dissected by me have an anconeal sesamoid, one on the ulnar side of the carpus, and one on the anterior edge of the wing at the base of the first phalanx of the second digit. I am inclined to believe that these sesamoids are seldom if ever lacking in Passeres except when lost in preparation, as may readily happen.

shorter in *Chætura* than in *Trochilus*. In shape it is intermediate between *Trochilus* and *Chordeiles*, *Trochilus* being intermediate between *Chordeiles* and *Chelidon*. The first phalanx of the third digit of *Trochilus*, although long and slender, does not begin to equal in these respects the corresponding phalanx of *Aptenodytes*, and is approximated even by *Chordeiles*, so that mere length can hardly be adjudged a good distinctive character. In the manner in which the second and third digits articulate with the metacarpus *Trochilus*, *Chætura* and *Chordeiles* agree very well among themselves, showing little of the 'breaking joints' found in *Chelidon* and other Passerines. In the proportional length of the outer phalanx of the second digit *Chætura* falls a little short of *Trochilus*, although vastly exceeding *Chelidon*.

The most remarkable feature in the pelvis of *Trochilus* is the great length of the slender, incurved pubes, which almost touch one another. This is also the case with *Chætura*, although to a much less degree. In *Chelidon*, on the contrary, the pubes are of but moderate length and but slightly incurved, so that they are very far removed from one another at their extremities, as in the higher Passerines. *Chordeiles*, in this as in other particulars, lies between *Chelidon* and *Chætura*.

A slighter character is found in the varying development of the ilio-neural grooves. These are practically obsolete in *Trochilus* and nearly so in *Chætura*, shallow in *Chordeiles*, and deeply excavated in *Chelidon*, *Ampelis*, *Merula*, and others. The region immediately over the true sacrals is strongly tumose in both *Trochilus* and *Chætura*, but not at all in *Chelidon*, or even *Chordeiles*.

Passing by the femora, which present few salient characters, we find that *Trochilus* and *Chætura* have the *cnemial* ridges of the tibia but poorly defined, while in *Chelidon* they stand forth as boldly as in *Merula*, *Chordeiles* again holding a median position. In *Trochilus* the fibula is one-fourth the length of the tibia, in *Chætura* less than one third, in *Chelidon* over one-half.

Both *Trochilus* and *Chætura* have a deep groove on the front of the 'tarsus,' at the lower end of which is a comparatively large foramen. Not only *Chelidon* but *Chordeiles* also has the shallow tarsal groove and minute perforation of the higher Passerines. *Trochilus* is peculiar in having a deep notch or emargination on the inner side of the 'tarsus' near its proximal extremity.

Trochilus, *Chætura*, and *Chelidon* all agree in having the penultimate phalanges of the foot much the longest of the series, *Chætura* standing first in the list. In this respect the three disagree with *Chordeiles*, in which the phalanges are inclined to be sub-equal. Finally, both *Trochilus* and *Chætura* have the three anterior digits of the foot somewhat equal in length, while *Chelidon* has the middle digit much longer than the others, and *Chordeiles* exaggerates the condition existing in *Chelidon*.

In thus reviewing the affinities of *Chætura*, I am fully aware that my comparisons have not been so extended as could be wished, but to have done the subject justice would have required an amount of time and material that unfortunately do not lie at my disposal. As Dr. Parker well says, "the structures of the skull and face govern the entire body," yet where these are divided in their allegiance it is surely allowable to fall back on other characters. Now, if I have read the skull of *Chætura* aright, it has affinities not only with the Passeres but with the Hummingbirds and Goatsuckers.*

Such being the case the remaining portions of the skeleton would seem unmistakably to point to the relationship of *Chætura* with *Trochilus*, while between these birds and the Passeres stand the Goatsuckers.

I am indebted to my friend, Mr. L. M. McCormick, for his kindness in supplying me with the specimens of *Trochilus*, *Chætura*, and Swallows on which this article has been mainly based, and to the National Museum for the use of the other material.

[Since this paper has been in the printer's hands Mr. J. W. Scollick has furnished me with a specimen of *Cotile riparia*, thus enabling me to examine all the North American Swallows. Dr. W. K. Parker has most kindly sent me *Cypselus apus*, and although I have not as yet had time to fully prepare the skeleton and compare it carefully with *Chætura* yet it promises to show no marked differences from that bird except, of course, in the numbering of the phalanges.]

* In order to be free from preconceived ideas Dr. Parker's matchless treatise on the Skull of Ægithognathous Birds was not consulted until this paper was finished. It is now a source of great satisfaction to me to find that in this, as in other places, I have followed in the footsteps of so trustworthy a guide.

DESCRIPTION OF A NEW JAY FROM CALIFORNIA.

BY H. W. HENSHAW.

Aphelocoma insularis, sp. nov.

General color above, including surface of wings and tail, dark azure blue, deepest on head.

Back deep sepia brown. Feathers from just anterior to eye to the occiput tipped with white, forming a streaked line. Sides of head, extending well down on neck and breast, dark azure blue. A spot anterior and posterior to eye, including lores and ear-coverts, black.

Feathers of throat and breast ashy white edged with blue. Posteriorly the underparts dull white. Crissum and under tail-coverts blue.

HAB. Santa Cruz Island, California.

MEASUREMENTS.

	Wing.	*Tail.*	*Bill.*	*Tarsus.*
♂ ad	5.30	6 —	1.30	1.85
♀ ad	5.40	6.28	1.20	1.79
— ad	5.40	6.10	1.17	1.65

The island to which the above species is confined, so far as known at present, is the innermost of the Santa Barbara Group, and is distant from the California coast about twenty miles. While on a short visit to the island in June, 1875, I collected three specimens of the bird in question which, after considerable hesitation, I decided to call *californica*, though they differed considerably from the few specimens of that bird then at hand. Since then the number of specimens of *californica* in the National Museum has so materially increased that nearly every portion of its range on the west coast, from Cape St. Lucas to Oregon, is represented in the series. Having recently had occasion to examine the entire collection of Jays, Mr. Ridgway has kindly called my attention to the fact that notwithstanding the accession of so much new material the island specimens still remain unique. I therefore hesitate no longer to describe them as representing a new species.

The insular habitat of the bird would seem to preclude the possibility of intergradation with the mainland form, if, indeed, the ample material at hand for comparison did not negative such an assumption.

The origin of the bird can hardly be doubtful. Individuals

doubtless reached the island from the mainland, and being non-migratory their continued residence under new conditions has effected very considerable changes of size and coloration.

The essential differences of the island bird from *californica* are its large size, deeper colors, especially of the brown on back, and the blue under tail-coverts instead of white. With reference to its coloration, it is a curious fact that all the colors are much deeper than of specimens from the northern counties of California and of Oregon where, from the presence of deep forests and a heavy rainfall, the coloration should be darker than anywhere to the southward. Specimens of *californica* from the mainland, both in California and Oregon, appear to be remarkably uniform in coloration. In its blue under tail-coverts *insularis* is like *woodhousei*, but otherwise its resemblance to that form is no closer than to *californica*.

Several other species of land birds were found to inhabit the island, and doubtless there were a considerable number not detected in the very hurried search, especially as but a small portion of the island was visited. Specimens were obtained of *Otocoris alpestris rubea*, *Sturnella magna neglecta*, *Carpodacus frontalis rhodocolpus*, *Melospiza fasciata samuelis*, and *Helminthophila celata lutescens*. None of these, however, so far as the few specimens testify, show noteworthy differences from the respective mainland forms.

THE BIRDS OF WESTERN MANITOBA—ADDENDA.

BY ERNEST E. THOMPSON.

[N. B.—Hitherto I have written under the assumed name of "Seton"; henceforth I shall write and be known only by my true name, as above.]

MR. RIDGWAY informs me that in the National Museum at Washington there is a specimen of true *Pediœcetes phasianellus* from Lake Winnipeg. The common Manitoban form is probably *campestris*.

My brother, Dr. A. S. Thompson, has sent me from Carberry, a Great Crested Flycatcher (*Myiarchus crinitus*), thus confirming my aural identification as published. Also a Bluebird (*Sialia sialis*) with nest and eggs.

258. **Sturnella magna**. MEADOW LARK.—Given by Professor Macoun as found at "Grand Valley and north of Lat. 51.°"

THE BIRDS OF THE WEST INDIES, INCLUDING THE BAHAMA ISLANDS, THE GREATER AND THE LESSER ANTILLES, EXCEPTING THE ISLANDS OF TOBAGO AND TRINIDAD.

BY CHARLES B. CORY.

[*Continued from p. 381.*]

FAMILY PSITTACIDÆ.

GENUS Ara BRISS.

Ara BRISSON, Orn. 1760.

Ara tricolor (BECHST.).

Psittacus tricolor BECHST. Kurze Ueb. p. 64, pl. 1 (1811).

Macrocercus tricolor VIEILL. Nouv. Dict. p. 262.—LESS. Traité d'Orn. p. 186 (1831).—CAB. J. f. O. 1856. p. 105.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 297 (1866); *ib.* J. f. O. 1874, p. 163.

Sittace tricolor WAGL. Mon. Psitt. p. 669 (1832).—FINSCH, Die Papag. Mon. Bearb. I, p. 409 (1867).

Ara tricolor D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 161 (1840).—GRAY, Gen. Bds. II, No. 5 (1844-49).—GOSSE, Bds. Jam. p. 260 (1847).—ALBRECHT, J. f. O. 1862, p. 202.—SCL. & SALV. Nom. Avium Neotr. p. 111 (1873).—A. & E. NEWTON, Handb. Jamaica p. 110 (1881).—CORY, List Bds. W. I. p. 20 (1885).

Macrocercus makavouanna STEPH. Gen. Zool. XIV, p. 112.

Macrocercus (Aracanga) tricolor LEMB. Aves Cuba, p. 132 (1850).—BP Rev. Mag. Zool. 1854. p. 149.

Arara tricolor BP. Naum. 1856.—SCHLEG. Mus. Pays-Bas, Psitt. p. 4 (1864).

Primolinus tricolor GRAY, Handl. Bds. II, p. 145 (1870).

SP. CHAR. *Male:*—Forehead red, becoming yellowish red on the top of the head, and shading into bright yellow on the nape; feathers of the upper back cinnamon red, edged with greenish; lesser wing-coverts brown, with reddish edgings; entire underparts scarlet red, showing a tinge of orange on the cheeks and throat, some of the feathers showing yellow on the belly; primaries and secondaries showing bright blue on the upper surface; under surface of primaries pale brownish red; upper surface of tail-feathers showing the feathers cinnamon red, shading into bright blue on the tips, some feathers showing more

blue than cinnamon, while in others the cinnamon predominates; under surface of tail-feathers cinnamon red, showing bright orange when held in the light; crissum pale blue; bare skin around the eye probably dull white; bill dark brown, pale at the tip; legs and feet brownish; iris pale yellow.

The sexes are probably similar.

Length (skin), including tail, about 18; wing, 11; tail, 10; tarsus .85; bill, curve, 2, straight line from base to tip, 1.75.

HABITAT. Cuba. Jamaica.

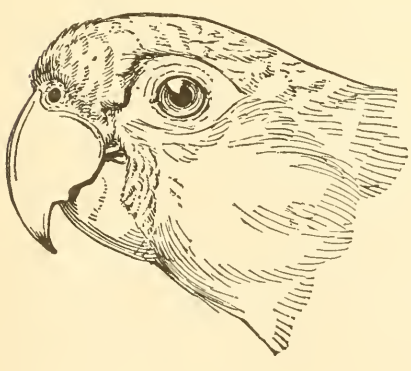
It is not impossible that *Ara militaris* may have occurred in Cuba and Jamaica, but it is improbable. The bird recorded as such was perhaps *A. tricolor* wrongly identified; Gosse remarks, however, that every description he received of the bird agreed with that of *A. militaris*, "the Great Green Macaw of Mexico." Dr. Gundlach writes me he believes *A. tricolor* is still to be found in the swamps of Cuba, and that years ago he killed a number of birds of this species in the swamps of southern Cuba. He has several fine specimens in his collection.

GENUS Conurus KUHL.

Conurus KUHL, Consp. Psitt. 4, 1830.

Conurus euops (WAGL.).

Sittace euops WAGL. Mon. Psitt. p. 638 (1832).
Psittacus euops HALM. Orn. Atl. Pap. p. 95 (1836).
Conurus guianensis D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 162 (1840).—LEMB. Aves Cuba, p. 132 (1850).



Conurus euops GRAY, Gen. Bds. II, No. 26 (1844-49).–FINSCH, Die Papag. Mon. Bearb. I, p. 474 (1867). — SCL. & SALV. Nom. Avium Neotr. p. 112 (1873). — CORY, List Bds. W. I. p. 20 (1885).
Evopsitta evops BP. Rev. Mag. Zool. 1854, p. 151.
Psittacara euops SOUANCÉ, Rev. Mag. Zool. 1856, p. 69.
Conurus guyanensis CAB. J. f. O. 1856, p. 106. — BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).

Conurus evops Gundl. Repert. Fisico-Nat. Cuba, I, p. 297 (1866); *ib.* J. f. O. 1874, p. 164; *ib.* Anal. Soc. Esp. Hist. Nat. VIII, p. 229 (1878).

Evopsitta guyanensis Gray, Handl. Bds. II. 146 (1870).

Sp. Char. *Male:*—General plumage green, dark above, light beneath; the head dotted here and there with small touches of bright red; this marking does not seem at all constant; a broad patch of vermillion red on the under wing-coverts, extending upon the carpus; shafts of wing and tail-feathers brownish black; bare skin around the eye bluish white.

The sexes are apparently similar.

Length (skin), 9.75; wing, 5.50; tail, 5.50; tarsus, .50.

Habitat. Cuba.

Conurus xantholæmus Scl.

Conurus xantholæmus Scl. Ann. Nat. Hist. 3d ser. IV, p. 225; *ib.* Cat. Am. Bds. p. 348 (1862).—A. & E. Newton, Ibis, 1859, p. 374.—Cassin, Pr. Acad. Nat. Sci. Phila. 1860, p. 377.—Taylor, Ibis, 1864, p. 171.—Gray, Handl. Bds. II. p. 148 (1870).—Cab. J. f. O. 1879, p. 222.—Cory, List Bds. W. I. p. 20 (1885).

Conurus xanthogenius Scl. & Salv. Nom. Avium Neotr. p. 112 (1873).

Sp. Char. *Male:*—Forehead, sides of the head and chin bright orange; rest of upper surface bright green; underparts yellowish green, marked with orange on the belly and abdomen; primaries blue, showing green on the outer webs, and having the shafts and tips brown; upper surface of tail green; under surface of tail yellow; bill dark.

The sexes are similar.

Length (skin), 9.50; wing, 6; tail, 5; tarsus, .35; bill, .90.

Habitat. St. Thomas and St. Croix.

Conurus nanus (Vig.).

Psittacara nana Vig. Zool. Journ. V, p. 273 (1830).—Lear, Parr. pl. 12.—Wagl. Mon. Psitt. p. 640 (1832).

Conurus nanus Gray, Gen. Bds. II, No. 32 (1844-49).—Souancé. Icon. Perr. pl. 12. fig. 1.—Albrecht, J. f. O. 1862, p. 203.—Scl. Cat. Am. Bds. p. 349 (1862).—March, Pr. Acad. Nat. Sci. Phila. 1863, p. 284.—Finsch. Die Papag. Mon. Bearb. I. p. 520 (1867).—Gray, Handl. Bds. II, p. 148 (1870).—Scl. & Salv. Nom. Avium Neotr. p. 112 (1873).—A. & E. Newton, Handb. Jamaica, p. 110 (1881).—Cory, List Bds. W. I. p. 20 (1885).

Conurus flaviventer Gosse, Bds. Jam. p. 263 (1847).

SP. CHAR. *Male:*—Entire upper plumage bright green; underparts showing a brownish tinge on the throat and breast; dull olive on the belly; upper surface of tail bright green shading into blue at the tip; under surface of tail yellow; outer webs of primaries green, inner webs blue, becoming brown at the edge; bill pale.

The sexes are apparently similar.

Length (skin), 10; wing, 5.25; tail, 5; bill, 1.

HABITAT. Jamaica.

Conurus chloropterus (SOUANCÉ).

Psittacara chloroptera SOUANCÉ, Rev. Mag. Zool. 1856, p. 59.

Conurus chloropterus SCL. P. Z. S. 1857, p. 234.—FINSCH, Die Papag. Mon. Bearb. I, p. 469 (1867).—CORY, Bds. Haiti & San Domingo, p. 113 (1855); *ib.* List Bds. W. I. p. 20 (1885).

Psitticus (*Conurus*) *chloropterus* BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 96 (1866).

SP. CHAR. *Male:*—General plumage yellowish green, darkest on the tail and wings; under surface of wings and tail greenish yellow; under wing-coverts bright scarlet, showing upon the edge of the wing; bill pale; feet dark brown; some specimens occasionally show feathers tipped with red upon the back and wings, but generally so slightly as to be hardly noticeable. Immature birds often show yellow on the primaries.

The sexes are similar.

Length, 12; wing, 7; tail, 6; tarsus, .50.

HABITAT. San Domingo.

Conurus gundlachi CABAN.

? Conurus evops GUNDL. J. f. O. 1878, p. 184.

Conurus gundlachi CAB. Orn. Centralb. VI, p. 1 (1881); *ib.* J. f. O. 1882, p. 119.—GUNDL. J. f. O. 1881, p. 401.

SP. CHAR.—"This species is distinguished from *Conurus euops* in having the wings nearly 3 ctm. longer, and by the extension of the red coloring of the lower wing-coverts, also on the under row of large wing-coverts, which in *euops* are yellowish olive as in most of the species of *Conurus*." (CABANIS, l. c., orig. descr., translated.)

HABITAT. Mona, near Porto Rico.

I have never seen this species, and the descriptions of it are somewhat meagre. Dr. Gundlach says that he was told the birds came from San Domingo to the Island of Mona, but adds that this is only a supposition.

Genus Chrysotis Swains.

Chrysotis "Swainson, Zool. Journ. 1837."

Chrysotis sallæi Scl.

"*Psittacus leucocephalus?* Gmel. Syst. Nat. I, p. 338 (1788)."
Chrysotis sallæi Scl. P. Z. S. 1857, p. 224; *ib.* Cat. Am. Bds. p. 353 (1862).—Scl. & Salv. Nom. Avium Neotr. p. 113 (1873).—Cory, Bds. Haiti & San Domingo, p. 115 (1885); *ib.* List Bds. W. I. p. 20 (1885).
Amazona sallæi Schleg. Mus. Pays-Bas, Psitt. p. 58 (1864).
Psittacus (Chrysotis) sallæi Bryant, Pr. Bost. Soc. Nat. Hist. XI, p. 96 (1866).
Chrysotis ventralis Gray, Handl. Bds. II, p. 164 (1870).
Chrysotis sallei Cory, Bull. Nutt. Orn. Club, VII, p. 154 (1881).

Sp. Char. *Male:*—General plumage green; forehead white, extending in front of the eye; top of head blue, narrowly tipped with black; a patch of black on the cheeks; abdomen and basal half of tail-feathers crimson, wanting upon the outer web of the outer tail-feather; thighs pale blue in very adult birds, in most specimens green, the blue being scarcely perceptible; primaries and secondaries dark blue on the outer webs; inner webs dark brown; a small patch of red on the throat, which does not appear to be constant.

The sexes are apparently similar.

Length, 10.50; wing, 8; tail, 4.50; tarsus, .60.

Habitat. Haiti and San Domingo.

Chrysotis vittata (Bodd.).

Psittacus vittatus Bodd. Tabl. Pl. d' Aub. p. 49 (1783).—Gray, Gen. Bds. II, No. 24 (1844-49).—Sundev. Oefv. K. Vet. Akad. För. 1869, p. 599.
Psittacus dominicensis Gmel. Syst. Nat. I, p. 343 (1788).—Vieill. Enc. Méth. p. 1375.—Wagl. Mon. Psitt. p. 597 (1832).
Psittacus leucocephalus Kuhl, Consp. p. 80 (1821).
Chrysotis dominicensis Bp. Rev. Mag. Zool. 1854, p. 151.
Chrysotis vittata Scl. P. Z. S. 1857, p. 224.—Gray, List Psitt. p. 83 (1859).—Finsch, Die Papag. Mon. Bearb. II, p. 515 (1867).—Gray, Handl. Bds. II, p. 165 (1870).—Scl. & Salv. Nom. Avium Neotr. p. 113 (1873).—Cory, List Bds. W. I. p. 20 (1885).
Amazona vittata Schleg. Mus. Pays-Bas, Psitt. p. 58 (1864).
Chrysotis vittatus Taylor, Ibis, 1864, p. 171.—Gundl. J. f. O. 1874, p. 312; *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 228 (1878).
Chrysotis ———Bryant, Pr. Bost. Soc. Nat. Hist. X, p. 256 (1866).

SP. CHAR. *Male:*—A narrow band of red on the forehead; upper plumage green; the feathers of the head and neck edged with dark brown, heaviest on the neck; underparts green, lighter than the back; yellowish green on the belly; the feathers on the breast edged with dull brown; primaries having the outer webs bright blue, lacking on the first.

The sexes are similar.

Length (skin), 10.50; wing, 7; tail, 4; tarsus, .60; bill, 1.35.

HABITAT. Porto Rico.

Chrysotis collaria (LINN.).

Psittacus collarius LINN. Syst. Nat. I. p. 149 (1766).—GMEL. Syst. Nat. I, p. 347 (1788).

Psittacus gutturalis MÜLL. Syst. Nat. Suppl. p. 78 (1776).

Psittacus leucocephalus, var. β. LATH. Ind. Orn. p. 118 (1790).—WAGL. Mon. Psitt. p. 600 (1832).

Psittacus leucocephalus GRAY, Gen. Bds. II, No. 25 (1844-49).—GOSSE, Bds. Jam. p. 269 (1847).

Pionus vinaceicollis LAFR. Rev. Zool. 1846, p. 241.

Psittacus vinaceicollis GRAY, Gen. Bds. III, App. p. 20 (1849).

Chrysotis leucocephala BP. Naum. 1856, ———.

Chrysotis vinaceicollis SCL. P. Z. S. 1857, p. 225.

Chrysotis collaria SCL. P. Z. S. 1861, p. 79; *ib.* Cat. Am. Bds. p. 353 (1862).—ALBRECHT, J. f. O. 1862, p. 203.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 284.—FINSCH, Die Papag. Mon. Bearb. II, p. 517 (1868).—GRAY, Handl. Bds. II, p. 164 (1870).—SCL. & SALV. Nom. Avium Neotr. p. 113 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 110 (1881).—CORY, List Bds. W. I. p. 20 (1885).

"*Chrysotis amazonicus*, juv. BL. Cat. Bds. p. 11."

SP. CHAR. *Male:*—Top of head blue, the feathers indistinctly showing black edges, fading into green on the nape; a narrow line of white on the forehead; the rest of upper surface bright green; throat dull red, some of the feathers narrowly edged with green; cheeks greenish blue; rest of underparts green; tail green, most of the feathers having the basal half of the inner webs dull green, faintly showing on the outer webs, the red entirely wanting on the central feathers.

Length (skin), 11.50; wing 7; tail, 4.50.

HABITAT. Jamaica.

Chrysotis leucocephala (LINN.).

Psittacus leucocephalus LINN. Syst. Nat. I, p. 100 (1758). — ALDROV. Orn. I, p. 670.—GMEL. Syst. Nat. I, p. 338 (1788).—WAGL. Mon. Psitt. p. 599 (1832).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 297 (1866).

Psittacus martinicanus BRISS. Orn. IV, p. 242 (1760).

Chrysotis leucocephalus SWAINS. Class. Bds. II, p. 301 (1837).—BP. Rev. Mag. Zool. 1854.—CAB. J. f. O. 1856, p. 105.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860).—FINSCH, Die Papag. Mon. Bearb. II, p. 520 (1868).—GRAY, Handl. Bds. II, p. 164 (1870).—GUNDL. J. f. O. 1874, p. 161.

Amazona leucocephala SCHLEG. Mus. Pays-Bas, Psitt. p. 59 (1864).

Psittacus (Chrysotis) collaria (var. *bahamensis*) BRYANT, Pr. Bost. Soc. Nat. Hist. VI. p.—— (1866).

Chrysotis leucocephala SCL. & SALV. Nom. Avium Neotr. p. 113 (1873).—CORY, List Bds. W. I. p. 20 (1885).

Chrysotis collaria CORY, Bds. Bahama I. p. 123 (1880).

SP. CHAR. *Male:*—General plumage green, many feathers narrowly tipped with dark brown; forehead and the top of the head to the eyes white; throat bright red, sometimes touched with green; some of the feathers on the belly brownish red; outer webs of primaries blue, inner webs brown; tail green, showing blue on outer webs of outer feathers, and red on the basal half of inner webs of all except the central ones, which sometimes show a trace near the shaft; bill yellowish white; iris brown.

The sexes are similar.

Length, 13; wing, 8; tail, 4.50; tarsus, .75; bill, 1.25.

HABITAT. Cuba and Bahamas.

Birds from the Island of Inagua, Bahamas, vary somewhat from Cuban examples. The Cuban bird shows deep crimson on the belly; the tail is light green, having the basal half of the inner web of the outer feathers deep red, rest of web pale yellowish green, the red marking becoming less and less on succeeding feathers until obsolete or nearly so on the two central ones; red coloring slight or absent on under wing-coverts. The Bahama bird differs from the above by showing very little red on the belly, sometimes nearly absent; more red on the crissum and under wing-coverts; tail bluish green, the red marking shown only on the two outer feathers. It is possible that the differences in question are not constant, but judging from the material examined I am of the opinion that the two forms are at least separable sub-specifically. If this should prove to be the case Dr. Bryant's name *bahamensis* would be used for the Bahama bird.

Chrysotis agilis (LINN.).

Psittacus cayennensis BRISS. Orn. IV, p. 237 (1760).

Psittacus agilis LINN. Syst. Nat. I, p. 143 (1766).—GOSSE, Bds. Jam. p. 266 (1847).

Psittacus minor VIEILL. Nouv. Dict. XXV, p. 314.
Psittacus signatus SHAW, Gen. Zool. VIII, p. 510.—KUHL, Consp. p. 71 (1821).
Psittacus æstivus KUHL. Consp. p. 75 (1821).
Psittacus virescens BECHST. Kurze Ueb. p. 99.
Chrysotis signatus SWAINS. Class. Bds. II, p. 301 (1837).
Chrysotis agilis GRAY, List Psitt. p. 82 (1859).—SCL. Cat. Am. Bds. p. 354 (1862).—ALBRECHT, J. f. O. 1862, p. 203.—MARCH, Pr. Acad. Nat. Sci. Phila. 1863, p. 284.—FINSCH, Die Papag. Mon. Bearb. II, p. 531 (1868).—GRAY, Handl. Bds. II, p. 164 (1870).—SCL. & SALV. Nom. Avium Neotr. p. 113 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 110 (1881).—CORY, List Bds. W. I. p. 20 (1885).

SP. CHAR. *Male:*—Top of head dark green, becoming somewhat lighter on the back; underparts light green; most of the feathers of the head, throat, and back delicately edged with black; a patch of black on the ear-coverts; primaries blue on the outer webs, edged with green on the basal portion, the blue color but slightly showing on the first four primaries; terminal portion of quills dark brown; tail green. One specimen before me has one of the wing-coverts bright red on one side, lacking in the other specimens

The sexes are similar.

Length (skin), 10; wing, 6.50; tail, 4; tarsus, .40; bill, 1.20.

HABITAT. Jamaica.

Chrysotis augusta (VIG.).

Psittacus havanensis KUHL, Consp. p. 79 (1821).—WAGL. Mon. Psitt. p. 740 (1832).
Psittacus augustus VIG. P. Z. S. 1836, p. 80.—GRAY & MITCH. Gen. Bds. pl. 104 (1844-49).
Chrysotis augustus GRAY & MITCH. Gen. Bds. No. 16 (1844-49).
Œnochrus augustus BP. Rev. Mag. Zool. 1854, p. 151.
Amazona augustus SCHLEG. Mus. Pays-Bas, p. 50 (1864).
Chrysotis augusta SCL. P. Z. S. 1865, p. 437.—FINSCH, Die Papag. Mon. Bearb, II, p. 557 (1868).—SCL. & SALV. Nom. Avium Neotr. p. 113 (1873).—LAWR. Pr. U. S. Nat. Mus. I, pp. 62, 487 (1878).—SCL. P. Z. S. 1881, p. 627.—CORY, List Bds. W. I. p. 20 (1885).

SP. CHAR.—Top of the head tinged with purplish, shading into green on the nape; cheeks and throat reddish purple, the feathers edged with bluish; the feathers of the sides of the neck and nape tipped with dull purple, forming a sort of collar; back and wings green; feathers on the rump slightly tipped with bluish; breast and underparts dull purple, the feathers pale at the tips, and showing delicate bluish edging when held in the light; flanks green; a patch of red on the outer webs of two of the secondaries, faintly showing on the

last primary, dull towards the terminal portion, becoming bright scarlet on the basal half; a patch of red on the edge of the carpus; quills brown; tail purplish-brown; under surface of tail green.

Length, 17; wing, 11; tail, 7; tarsus, .75; bill, 1.50.

HABITAT. Dominica.

Chrysotis guildingi (VIG.).

Psittacus guildingi VIG. P. Z. S. 1836, p. 80.—GRAY, Gen. Bds. No. 28 (1844-49).

Chrysotis guildingi BP. Rev. Mag. Zool. 1854, p. 151.—FINSCH, Die Papag. Mon. Bearb. II, p. 559 (1868).—GRAY, Handl. Bds. II, p. 164 (1870).—SCL. & SALV. Nom. Avium Neotr. p. 113 (1873).—LAWR. Pr. U. S. Nat. Mus. I, pp. 193, 487 (1878).—LISTER, Ibis, 1880, p. 42.—SCL. P. Z. S. 1881, p. 627.—CORY, List Bds. W. I. p. 20 (1885).

Amazona guildingi SCHLEG. Mus. Pays-Bas, p. 49 (1864).

SP. CHAR.—Top of the head and cheeks yellowish white, shading into yellowish orange on the throat, and into bluish feathers with black edgings on the sides of the neck and nape; back pale yellowish brown, feathers edged with dull black; underparts pale reddish brown, feathers shading into green at the ends, and tipped with black on the belly; under surface of tail dull orange, pale yellow at the tip, feathers banded across the middle by a broad stripe of green; upper surface of tail-feathers yellow at base and tip, showing a band of blue across the centre; primaries dark blue, the basal half of the first five yellow, the rest shading into orange on the outer webs of the basal half and showing less and less yellow on the inner webs; under surface of wing yellow; greenish on the under wing-coverts; bill pale.

The sexes are apparently similar.

Length, 19; wing, 10.75; tail, 7; tarsus, .75.

HABITAT. St. Vincent.

Chrysotis bouqueti (BECHST.).

Psittacus arausiacus MÜLL. Syst. Nat. Suppl. p. 79 (1766).

Psittacus autumnalis var. β. GMEL. Syst. Nat. I, p. 345 (1788).—LATH. Ind. Orn. p. 124 (1790).

Psittacus bouqueti BECHST. Lath. Ueb. p. 99 (1793).—KUHL, Consp. p. 76 (1821).

Psittacus cyancocapillus VIEILL. Enc. Méth. p. 1373.—BURM. Syst. Ueb. II, p. 186.

Psittacus cærulifrons SHAW, Gen. Zool. VIII, p. 515.—VOIGHT, Cuv. Ueb. 1831, p. 741.

Chrysotis cyancocephalus SWAINS. Class. Bds. II, p. 301 (1837).

Chrysotis bouqueti GRAY, Gen. Bds. II, No. 11 (1844-49).—BP. Rev. Mag

Zool. 1854.——.—SCL. P. Z. S. 1881, p. 627.—CORY, List Bds. W. I. p. 20 (1885).

Chrysotis nichollsi LAWR. Pr. U. S. Nat. Mus. III, p. 254 (1880).

SP. CHAR.—Front of head and throat dull purplish blue, palest on the throat; the feathers of the cheeks green, tipped with bluish; upper parts dark green, and the feathers tipped with dark brown; quills dark brown, tinged with green on the outer webs, and showing a patch of red on the outer web of the tenth and eleventh feathers; a patch of dull red mixed with yellow on the upper part of the breast joining the throat; underparts green, the feathers narrowly edged with bluish; tail-feathers showing red at the base of the inner webs, succeeded by dark green at the middle, and tipped with light green.

Length, 15; wing, 9.25; tail, 6.50; tarsus, .62; bill, 1.50.

HABITAT. Dominica.

Chrysotis versicolor (MÜLL.).

Psittacus versicolor MÜLL. Syst. Nat. Suppl. p. 78 (1766).

Chrysotis cyanopsis FINSCH, Die Papag. Mon. Bearb. II, p. 528 (1868).—SCL. & SALV. Nom. Avium Neotr. p. 113 (1873).

Œnochrus versicolor GRAY, Handl. Bds. II, p. 165 (1870).

Chrysotis bouqueti SCL. P. Z. S. 1874, p. 323; *ib.* 1875, p. 61.—ALLEN, Bull. Nutt. Orn. Club. V, p. 169 (1880).

Chrysotis versicolor SCL. P. Z. S. 1881, p. 627.—CORY, List Bds. W. I. p. 20 (1885).

SP. CHAR.—Forehead and in front of the eye dark blue; top of the head, cheeks, and throat pale blue, the feathers tipped with black; a few yellowish feathers at the base of the skull; breast red, the feathers tipped with dark brown; underparts red, the feathers tipped with green; back and wing-coverts green, tipped with black; primaries dark blue on the basal portion of the outer webs; rest of the primaries dark brown; a broad patch of red on the outer webs on the tenth and eleventh feathers; outer tail-feathers showing bright red at the base, a band of blue extending half the length of the feather, and the terminal portion being yellow; under surface of tail-feathers green, having the terminal portion pale greenish yellow, and showing the red on the base of the outer feathers.

Length, 18; wing, 11; tail, 8; tarsus, .75; bill, 1.40.

HABITAT. Santa Lucia.

FAMILY STRIGIDÆ.

GENUS Strix LINN.

Strix LINNÆUS, Syst. Nat. I, p. 131 (1766).

Strix flammea furcata (TEMM.).

Strix furcata TEMM. Pl. Col. p. 432 (1832).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 34 (1840).—GUNDL. J. f. O. 1855, p. 467.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 227 (1865); *ib.* J. f. O. 1871, p. 79.
Strix pratincola GOSSE, Bds. Jam. p. 23 (1847).—SCL. P. Z. S. 1861, p. 79.—ALBRECHT, J. f. O. 1862, p. 204.
Glyphidura furcata GRAY, Handl. Bds. I, p. 52 (1869).
Strix flammea var. *furcata* BD. BWR. & RIDGW. Hist. N. Am. Bds. III, p. 12 (1874).
Strix flammea fuscata CORY, List Bds. W. I. p. 21 (1885).

This form varies from the usual coloration in having the secondaries and tail nearly white, the latter usually without bars.

Wing, 12.50; tail, 5.70; tarsus, 2.75.

HABITAT. Cuba and Jamaica.

Bubo virginianus is recorded from Jamaica in Sclater & Salvin's 'Nomenclator Avium Neotropicalium.' I have been unable to find other West Indian records.

Strix flammea nigrescens LAWR.

Strix flammea var. *nigrescens* LAWR. Pr. U. S. Nat. Mus. I, p. 64 (1878).
Strix flammea LISTER, Ibis, 1880, p. 44.
Strix flammea nigrescens CORY, List Bds. W. I. p. 21 (1885).

SP. CHAR.—"Upper plumage of a fine blackish brown, rather sparsely marked with small white spots; the tail is crossed with alternate bands of brown and light dull ochraceous freckled with brown; the wings are the color of the back, somewhat intermixed with rufous; the under plumage is light reddish-ochraceous, marked with small, round black spots (the color is lighter than the under plumage of the Costa Rica specimen); the ends of the ruff-feathers are dark reddish-brown; feathers around the eye, black; the face is of a light reddish fawn color. Bill white; iris deep chocolate, half an inch in diameter. Length (fresh), 13 in.; wing, 10; tail, 4½; tarsus 2." (LAWR., orig. descr., l. c.)

HABITAT. St. Vincent and Dominica.

Strix flammea pratincola.

Strix pratincola BONAP. List, 1838, p. 7.
Strix flammea var.? BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 65 (1867) (Bahamas).

Strix flammea var. *pratincola* BD. BWR. & RIDGW. Hist. N. Am. Bds. p. 13, III (1874).—CORY, Bds. Bahama I. p. 125 (1880).
Strix flammea pratincola CORY, List Bds. W. I. p. 21 (1885).

This form occurs in the Bahama Islands.

Strix glaucops KAUP.

Athene dominicensis BP. Consp. I, p. 38 (1850).—SALLÉ, P. Z. S. 1857, p. 231.
Strix glaucops "KAUP, Contr. Orn. p. 118 (1852)"; *ib.* Tr. Z. S. IV, p. 246.—PELZ. J. f. O. 1872, p. 23.—CORY, Bds. Haiti & San Domingo, p. 117 (1885); *ib.* List Bds. W. I. p. 21 (1885).
Strix (*Athene*) *dominicensis* BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 90 (1867).
Strix flammea SHARPE. Cat. Bds. Brit. Mus. II, p. 292 (1875).
Strix dominicensis CORY, Bull. Nutt. Orn. Club, VII, p. 95 (1883).

SP. CHAR. *Male:*—General plumage above dark brown, shading into orange-rufous on the side of the neck; quills showing inner webs brownish; outer webs dull orange-rufous, banded with brown; entire underparts pale orange-rufous, mottled with zigzag marking of light brown, whitening somewhat on the throat and abdomen; face deep gray; an ante-orbital spot of black; circle of feathers around the face dark chestnut, bordered with black on the throat; tarsus not feathered to the feet.

The sexes are apparently similar.

Length, 13.50; wing, 10; tail, 4.60; tarsus, 3.45.

HABITAT. Haiti and San Domingo.

GENUS Pseudoscops KAUP.

Pseudoscops KAUP, Isis, 1848, p. 769.

Pseudoscops grammicus (GOSSE).

Ephialtes grammicus GOSSE, Bds. Jam. p. 19 (1847).
Pseudoscops grammicus KAUP, Isis, 1848, p. 769.—SCL. P. Z. S. 1861, p. 80.—ALBRECHT, J. f. O. 1862, p. 204.—GRAY, Handl. Bds. I, p. 51 (1869).—SCL. & SALV. Nom. Avium Neotr. p. 116 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 110 (1881).—CORY, List Bds. W. I. p. 21 (1885).
Scops grammicus BP. Consp. I, p. 46 (1850).—STRICKL. Orn. Syn. p. 205.
Asio grammicus SHARPE, Cat. Bds. Brit. Mus. II, p. 242 (1875).

"*Adult female.* General colour above sandy-buff, transversely vermiculated with dark brown, more distinctly on the back and scapular feathers, some of which are mesially streaked with dark

brown, some of the outermost rather more broadly barred with sandy colour, but not exhibiting any trace of white or buff spots; head and neck rather lighter sandy colour, the transverse black lines very regular, especially on the ear tufts, which are coloured like the rest of the head, but are nearly uniform rufous on their inner webs; entire facial aspect foxy red, the hindermost of the ear-coverts whitish, tipped with black, merging in the ruff, which is composed of sandy-buff feathers, black at tip and at base; the stiff gular feathers sandy rufous, streaked and indistinctly barred with black; chin-feathers buffy white; rest of the under surface deep sandy rufous, with faint indications of dusky vermiculations of brown, the abdominal plumes more or less verging on white and showing very little of the mesial black streaks which are so distinct on the breast feathers; leg feathers uniform tawny buff, as also the under tail-coverts; under wing-coverts buff, slightly washed with sandy-rufous, the lower series black, with fulvous bases, forming a bar across the wing, and resembling the inner lining of the quills, which are fulvescent towards the base of the inner web, on which they are broadly barred with black; upper wing-coverts resembling the back, and very coarsely vermiculated with dark brown, the sandy-buff bars being pretty apparent here and there, and especially distinct on the outer web of the spurious quills; primary-coverts dark brown, irregularly barred across with sandy-buff; quills banded alternately for their entire length with blackish brown and sandy-buff, these bars less distinct on the secondaries, the light interspaces obscured with dark brown vermiculations, especially the innermost, which consequently resemble the back; tail sandy-buff barred across with dark brown, about eleven bars being traceable on the centre feathers, the interspaces more or less mottled with vermiculations of brown, the exterior rectrix paler and more fulvous, crossed with about thirteen brown bars; cere blackish grey; bill pale blue-grey; feet dull lead-colour; claws horny grey; iris hazel. Total length 12.2 inches, wing 8.4, tail 5.1, tarsus 1.55." (SHARPE, l. c.)

HABITAT. Jamaica.

GENUS Asio BRISS.

Asio BRISSON, Orn. I. p. 28 (1760).

Asio stygius (WAGL.).

Nyctalops stygius WAGL. Isis, 1832, p. 1221.—GRAY, List Gen. Bds. p. 6.—SCL. & SALV. Nom. Avium Neotr. p. 116 (1873).

Otus sygnapa D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 31 (1840).—GRAY, Gen. Bds. I, p. 40 (1844-49).—BP. Consp. I, p. 50 (1850).—CAB. J. f. O. 1855, p. 465.—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 226 (1865); *ib.* J. f. O. 1871, p. 374.

Otus stygius PUCHER. Rev. Mag. Zool. 1849, p 29.—GRAY, Gen. Bds. I, p. 40 (1844-49).—KAUP, Contr. Orn. 1852, p. 113.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860).—BD. BWR. & RIDGW. Hist. N. Am. Bds. III, p. 17 (1874).

Otus melanopsis LICHT. Nom. Av. p. 6.

Asio stygius STRICKL. Orn. Syn. p. 207.—SHARPE, Cat. Bds. Brit. Mus. II, p. 241 (1875).—CORY, List Bds. W. I. p. 21 (1885).

Asio signapa STRICKL. Orn. Syn. p. 212.

SP. CHAR. "*Adult.* Above of a nearly uniform chocolate-brown, the hinder neck and wig with a few longitudinal spots of light ochre, rather more oval in shape on the latter, the rest of the upper surface having concealed spots and vermiculations of whitish buff, rather larger and more distinct on the outer margin of the scapulars; wing-coverts uniform with the back, with the same more or less concealed vermiculations, these being absent on the primary-coverts, which are uniform brown; quills chocolate-brown like the back, with obsolete bars of lighter brown, more distinct on the secondaries, where they are often replaced by ochraceous spots or vermiculations, the innermost uniform with the back, and slightly freckled with vermiculations of whitish buff or light ochre, the primaries with a few spots of deep ochre on the outer web, only distinct or of any size near the base; upper tail-coverts brown, with distinct bars of bright ochre; tail deep chocolate-brown, with a whitish tip, and crossed with five or six additional bars of bright ochre, these bars more numerous (seven or eight) on the inner web when the tail is spread; forehead and feathers above the eye brown, streaked with silvery grey; ear-tufts 2 inches long, chocolate-brown, with outer margins of light ochre; sides of face dingy brown, the cheeks streaked with fulvous, and the ear-coverts fulvous at their bases; ruff brown, mottled with light ochre, the hinder feathers almost entirely ochraceous, with brown margins and shaft-stripes; chin dingy brown, mottled with pale ochraceous, the ruff across the throat composed of white feathers with dark brown centres; rest of under surface ochraceous, mottled with brown, this color more prevalent on the upper breast where it occupies the centre of the feathers; the lower breast and abdomen streaked with brown down the middle of the feathers, with dark brown lateral bars to each, the interspaces being oval spots of white; leg-feathers deep ochre, spotted with triangular brown markings; under tail-coverts deep ochre, the longest ones streaked with brown; under wing-coverts deep ochre, the outermost spotted and margined with brown, the greater series light ochraceous at base, dark brown at tip, thus resembling the inner lining of the wing, which is almost entirely dark brown, excepting a few irregular bars of ochraceous, these being almost entirely absent near the primaries. Total length 20 inches, wing 13.7, tail 7.8, tarsus 1.4." (SHARPE, l. c.)

HABITAT. Cuba.

Asio accipitrinus (PALL.).

Strix accipitrina PALL. Reise Russ. Reich. I, p. 455 (1771).
Otus brachyotus LEMB. Aves Cuba, p. 21 (1850).
Brachyotus palustris CAB. J. f. O. 1855, p. 465 (Cuba).
Brachyotus cassinii BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860) (Cuba).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 226 (1865); *ib.* J. f. O. 1871, p. 375 (Cuba).
Asio accipitrinus SHARPE, Cat. Bds. Brit. Mus. II, p. 234 (1875).—CORY, List Bds. W. I. p. 21 (1885).

Accidental in Cuba.

Asio portoricensis RIDGW.

Strix brachyotus SUNDEV. Oefv. K. Vet. Akad. För. 1869, p. 601 (Porto Rico) (?)
Brachyotus cassinii GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 165, 1878; *ib.* J. f. O. 1878, p. 158 (Porto Rico).
Asio portoricensis RIDGW. Pr. U. S. Nat. Mus. IV, p. 366 (1881) (Porto Rico).—CORY, List Bds. W. I. p. 21 (1885).

SP. CHAR. "Above dusky brown, nearly or quite uniform on the dorsal region; the scapulars, however, narrowly bordered with pale ochraceous or dull buff; feathers of the head narrowly, and those of the nape broadly, edged with buff; rump and upper tail-coverts paler brown or fawn-color, the feathers marked near their tips by a crescentic bar of dark brown. Tail deep ochraceous, crossed by about five distinct bands of dark brown, these very narrow on the lateral rectrices, but growing gradually broader toward the intermediæ, which are dark brown, with five or six pairs of ochraceous spots (corresponding in position to the ochraceous interspaces on the outer tail-feathers), these spots sometimes having a central small brown blotch. Wings with dark brown prevailing, but this much broken by a general and conspicuous spotting of ochraceous; primaries crossed with bands of dark brown and deep ochraceous, the latter broadest on the outer quills, the pictura of which is much as in *A. accipitrinus*, but with the lighter color usually less extended. Face with dull, rather pale, ochraceous prevailing; this becoming nearly white exteriorly, where bordered, around the side of the head, by a uniform dark brown post-auricular bar; eyes entirely surrounded by uniform dusky, this broadest beneath and behind the eye. Lower parts pale ochraceous or buff, the crissum, anal region, tarsi, and tibiæ entirely immaculate; jugulum and breast marked with broad stripes of dull brown, the abdomen, sides and flanks with narrow stripes or streaks of the same. Bill dusky; iris yellow. Wing, 11.25–12.00; tail, 5.25–5.50; culmen, .70; tarsus, 1.85–2.00; middle toe, 1.20–1.30" (RIDGW., orig. descr.)

HABITAT. Porto Rico.

GENUS Gymnasio BONAP.

Gymnasio BONAPARTE, Rev. Mag. Zool. 1854, p. 543.

Gymnasio nudipes (DAUD.).

Strix nudipes DAUD. Traité d'Orn. II, p. 199 (1800).—VIEILL. Ois. Am. Sept. I, p. 45 (1807).
Noctua nudipes STEPH. Gen. Zool. XIII, p. 70.—LESS. Traité d'Orn. p. 104.
Athene nudipes GRAY, Gen. Bds. I, p. 35 (1844).—STRICKL. Orn. Syn. p. 173.
Surnia nudipes BP. Oss. Rég. An. Cuv. p. 59.
Surnium nudipes KAUP, Contr. Orn. p. 120 (1852).
Gymnasio nudipes BP. Rev. Mag. Zool. 1854, p. 543.—SHARPE, Cat. Bds. Brit. Mus. II, p. 149 (1875).—CORY, List Bds. W. I. p. 21 (1885).
Gymnoglaux nudipes A. & E. NEWTON, Ibis, 1859, p. 54; *ib.* 1860, p. 307.—CASSIN, Pr. Acad. Nat. Sci. Phila. 1860, p. 374.—SCL. & SALV. Nom. Avium Neotr. p. 116 (1873).—GUNDL. Anal. Soc. Esp. Hist. Nat. VII, p. 166 (1878); *ib.* J. f. O. 1878, p. 158.
Gymnoglaux newtoni LAWR. Ann. Lyc. N. Y. VIII, p. 258 (1867).
Gymnoglaux krugii CAB. J. f. O. 1875, p. 223.

SP. CHAR.—Entire upper surface reddish brown; feathers of the breast and belly pale, variously dotted and banded with light brown; face pale brown, showing whitish between the eyes; the feathers slightly marked with whitish on the cheeks and throat; under tail-coverts white, narrowly shafted with brown; tail dull brown; primaries brown, dotted with white, mixed with brownish white on the outer webs; lining of wing dull white, mottled with brown on the carpus. Length, 9; wing, 6.75; tail, 3; tarsus, 1.45; bill, .70.

HABITAT. Porto Rico, St. John, St. Croix, and St. Thomas.

Gymnasio lawrenceii (SCL. & SALV.).

Noctua nudipes LEMB. Aves Cuba, p. 23, pl. 4, fig. 2 (1850).
Gymnoglaux nudipes CAB. J. f. O. 1855, p. 465.—LAWR. Ann. Lyc. N. Y. VII, p. 257 (1862).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 226 (1865); *ib.* J. f. O. 1871, p. 376.
Ephialtes nudipes BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860).
Gymnoglaux lawrenceii SCL. & SALV. P. Z. S. 1858, p. 328, pl. 29; *ib.* Nom. Avium Neotr. p. 117 (1873).
Gymnasia lawrencei GRAY, Handl. Bds. I, p. 47 (1869).
Gymnasio lawrenceii SHARPE, Cat. Bds. Brit. Mus. II, p. 150 (1875).—CORY, List Bds. W. I. p. 21 (1885).

SP. CHAR.—Upper surface dark brown, mottled with white on the back and wing-coverts; face dull brownish white, palest on the throat;

breast brown mixed with white; rest of underparts dull white, the feathers lined with brown; primaries dark brown marked with white on the outer webs; tail dark brown, showing an indistinct band of white on the under surface; bill horn-color.

Length, 8; wing, 5.50; tail, 3; tarsus, 1.25; bill, .50.

HABITAT. Cuba.

GENUS Glaucidium BOIE.

Glaucidium BOIE, Isis, 1826, p. 976.

Glaucidium siju (D'ORB.).

Noctua siju D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 33 (1840).—GUNDL. Journ. Bost. Soc. Nat. Hist. VI, p. 318 (1857).

Athene siju GRAY, Gen. Bds. I, p. 25 (1844).—CASS. Cat. Strig. Phila. Mus. p. 13.

Nyctale siju BP. Consp. I, p. 54 (1850).—STRICKL. Orn. Syn. p. 177.

Strix havanensis LICHT. Mus. Berol. unde.

Glaucidium havanense KAUP, Contr. Orn. p. 103 (1852).

Glaucidium siju CAB. J. f. O. 1855, p. 59.—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 306 (1860).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 226 (1865).—GRAY. Handl. Bds. I, p. 42 (1869).—GUNDL. J. f. O. 1871, p. 375.—RIDGW. Pr. Bost. Soc. Nat. Hist. 1873, p. 65.—SCL. & SALV. Nom. Avium Neotr. p. 117 (1873).—SHARPE, Ibis, 1875, p. 59; *ib.* Cat. Bds. Brit. Mus. II, p. 193 (1875).—CORY, List Bds. W. I. p. 21 (1885).

SP. CHAR.—Very small. Top of head pale brown, the feathers delicately dotted with dull white; face dull white mixed with brownish; throat dull white, shading into mixed light brown and white on the breast; underparts white, the feathers streaked with dark brown; thighs rufous brown; under tail-coverts white; primaries dark brown, dotted and blotched with white, heaviest on the basal portions; back and wing-coverts dull brown, mottled with pale brown; upper surface of tail-feathers dark brown, narrowly banded with brownish white; bill pale.

A female in my collection has the entire upper surface reddish brown, with the feathers on the head unspotted.

Length, 7; wing, 4; tail, 2.40; tarsus, .75; bill, .45.

HABITAT. Cuba.

GENUS Speotyto GLOGER.

Speotyto GLOGER. Handb. Naturg. p. 226, 1842.

Speotyto dominicensis Cory.

Speotyto cunicularia Sharpe, Cat. Bds. Brit. Mus. II, p. 142 (1875).—Cory, Bds. Haiti & San Domingo, p. 118 (1885).

Athene cunicularia Brace, Pr. Bost. Soc. Nat. Hist. XIX, p. 240 (1877) (?)

Speotyto cunicularia dominicensis Cory, Bull. Nutt. Orn. Club, VI, p. 154 (1881); *ib.* List Bds. W. I. p. 22 (1885).

Sp. Char. *Male:*—General plumage brown; the head marked with streaks of dull white; feathers of the nape showing a sub-terminal bar of dull white; back mottled and barred with dusky white; quills brown tipped with dull white and barred with pale brown; secondaries marked on the outer web; tail brown, tipped with buff white and banded; ear-coverts brown; cheeks dull white; throat and upper neck dull white, separated from each other by a mark of sandy buff, barred with brownish; underparts dull white, barred with brown, the bars becoming narrower on the lower part of the body; thighs buff; under wing-coverts yellowish buff, sometimes spotted with brown near the outer edge, and becoming dull white on the edge of the wing; tarsus feathered in front to the foot; iris yellow.

The sexes are similar.

Length, 8; wing, 6; tail, 2.50; tarsus, 1.50.

Habitat. Haiti. Bahamas?

It is possible that the species mentioned by Brace was the Florida form. I have never seen a specimen from the Bahama Islands.

Speotyto guadeloupensis (Ridgw.).

Speotyto cunicularia var. *guadeloupensis* Ridgw. in Bd. Bwr. & Ridgw. Hist. N. Am. Bds. III, p. 90 (1874).—Coues, Bds. N. W. p. 322 (1874).

Speotyto guadeloupensis Sharpe, Cat. Bds. Brit. Mus. II, p. 147 (1875).—Cory, List Bds. W. I. p. 21 (1885).

Sp. Char.—"Primaries without broad or regular bars of whitish on either web; primary-coverts plain brown. Brown markings on the lower parts regularly transverse, and equal in extent to the white. White spots on the upper parts very small, reduced to mere specks on the dorsal region.

"Wing, 6.40; tail, 3.40; culmen, .60; tarsus, 1.82; middle toe, .85. Outer tail-feathers and inner webs of the primaries with the light (ochraceous) bars only about one fourth as wide as the brown (disappearing on the inner quills)." (Ridgw., orig. descr., l. c.)

Habitat. Guadeloupe and St. Nevis.

Speotyto amaura LAWR.

Speotyto amaura LAWR. Pr. U. S. Nat. Mus. I, p. 234 (1878).—CORY, List. Bds. W. I. p. 21 (1885).

SP. CHAR. *Male:*—"Upper plumage of a fine deep, brown color, marked with roundish spots of light fulvous; the spots are smallest on the crown, hind neck, and smallest wing-coverts; they are conspicuously large on the other wing-coverts, the dorsal region, scapulars, and tertials; the quills are blackish brown, with indented marks of pale reddish fulvous on the outer webs of the primaries, and large roundish paler spots on the inner webs; under wing-coverts reddish fulvous sparsely mottled with black; tail dark brown, of the same color as the back, crossed with four bars (including the terminal one), of light reddish fulvous, which do not quite reach the shaft on each web; bristles at the base of the bill black, with the basal portion of their shafts whitish; front white, superciliary streak pale fulvous; cheeks dark brown, the feathers tipped with fulvous; upper part of throat pale whitish buff, the lower part grayish white, with a buffy tinge, separated by a broad band of dark brown across the middle of the throat, the feathers of which are bordered with light fulvous; the sides of the neck and the upper part and sides of the breast are dark brown, like the back, the feathers ending with fulvous, the spots being larger on the breast; the feathers of the abdomen are pale fulvous, conspicuously barred across their centres with dark brown; on some of the feathers the terminal edgings are of the same color; the flanks are of a clear light fulvous, with bars of a lighter brown; under tail-coverts fulvous, with indistinct bars of brown; thighs clear fulvous, with nearly obsolete narrow dusky bars; the feathers of the tarsi are colored like the thighs and extend to the toes; bill clear light yellow with the sides of the upper mandible blackish, toes dull yellowish-brown.

"Length (fresh), 8½ in.; wing, 6⅜; tail, 3⅛; tarsus, 1⅛.

"The female differs but little from the male in plumage; the bars on the abdomen appear to be a little more strongly defined, and at the base of the culmen is a small red spot. There are two females in the collection, the other also having the red spot; in one the tarsi are feathered to the toes, in the other only for two-thirds their length.

"Length of one (fresh), 8 in.; wing, 6½; tail, 2⅞; tarsus, 1¼.

"Length of the other, 8½; wing, 6¼; tail, 3; tarsus, 1½.

"Compared with *gaudeloupensis*, the prevailing color is dark brown, instead of a rather light earthy-brown, and the spots on the interscapular region are much larger; it is more strikingly barred below, the other having the breast more spotted; the bars on the tail are four instead of six. In the Antigua bird each feather of the breast is crossed with but one bar, while those of the other are crossed with two." (LAWR., orig. descr., l. c.)

HABITAT. Antigua.

RECENT LITERATURE.

'The Standard Natural History'—'Birds.'*—The 'bird volume' of the well-known 'Standard Natural History,' published by S. E. Casino and Company of Boston, well maintains the high degree of excellence characterizing this important treatise on Zöology, now about completed in six beautifully illustrated imperial octavo volumes, mostly by the leading American authorities on the various subjects treated. The bird volume is mainly by Dr. Leonhard Stejneger, who is doubtless responsible for its general style and character, he having written the admirable 'Introduction' (pp. 1-20), and nearly two-thirds of the general text, as follows: Subclass I, Saururæ (the Archæopteryx), pp. 21-23; Subclass II, Odontotormæ (toothed birds having the teeth in sockets), pp. 23-26; Subclass III, Odontoholcæ (toothed birds with the teeth in grooves), pp. 27-30; Subclass IV, orders Struthiones (Ostriches, Cassowaries, Moas, Dodo, etc.), pp. 31-47; Æpiornithes, pp. 47, 48; Apteryges (Kiwis), pp. 48-51; Crypturi (Tinamous), pp. 51-54; Gastornithes (the extinct *Gastornis* and allies), pp. 54, 55; Ptilopteri (Penguins), pp. 56-63; Cecomorphæ (Grebes, Auks, Guillemots, Puffins, Skuas, Gulls, Terns, Skimmers, Albatrosses, and Petrels), pp. 64-91; Grallæ (Plovers, Sandpipers, Cranes, Rails, etc.), pp. 91-132; Chenomorphæ (Screamers, Ducks, Geese, Swans, Flamingoes, etc.), pp. 132-157; Herodii (Ibises, Storks, Herons, Boatbills, etc.), pp. 157-179; Steganopodes (Tropic-birds, Frigate-birds, Pelicans, Cormorants, Darters, etc.), pp. 179-195; Picariæ (except the Hummingbirds), pp. 368-441; Passeres, pp. 458-547. In more general terms, Dr. Stejneger has written the three subclasses of extinct birds, the Struthious birds, the wading and swimming birds, the so-called Picarian groups except the Hummingbirds, and the great group of Passeres.

Of the other groups Mr. Daniel G. Elliot has written the Opisthocomi (pp. 196, 197), the Gallinæ (pp. 197-237), the Columbæ (pp. 237-259), and the Hummingbirds (pp. 441-457),—groups to which he is well known to have given special attention.

Mr. Walter B. Barrows is responsible for the Accipitres (pp. 260-348), and Mr. J. S. Kingsley for the Psittaci (pp. 349-367).

The work as a whole is deserving of high praise. While to a large degree 'popular' in treatment, it presents a fair reflection of our present knowledge of the structure and classification of the class Aves. As an authoritative reviewer of the volume has already well said, "No work issued in Europe contains such a good general account of the Class of Birds according to the most recent researches of naturalists, and brings one into acquaintance with the newest discoveries in this group of vertebrates."

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* The Standard | Natural History, | Edited by John Sterling Kingsley. | Vol. IV. | Birds. | Illustrated | by two hundred and seventy-three wood-cuts and twenty-five | full-page plates. | Boston: | S. E. Casino and Company. | 1885. Imp. 8vo, pp. viii + 558.

The classification presents a few innovations as regards the relative rank and limitations of certain of the higher groups, where a few new names are introduced, and a few changes are made in the nomenclature of genera and species. The class Aves is divided into four subclasses, as already indicated, three of them consisting entirely of extinct types, while the fourth (Eurhipiduræ) includes all the living representatives of the class and their more closely allied extinct forms. This latter subclass is divided into three 'super-orders' and eighteen 'orders.' The work begins with the 'lower' or more generalized forms, as the Archæopteryx and Toothed Birds, and closes with the Passeres. It is illustrated with 25 full-page plates and 273 cuts in the text, not a few of the latter being anatomical.

Lack of space forbids a detailed review, quotations, or extended criticism.

In the matter of editorship, we may remark that the passage from one group to another is often obscurely indicated, which a more formal use of subheadings would have obviated. While the names of the authors are given on a leaf preceding the title page, there is nothing there or elsewhere to indicate the share of each author's work, except the signatures to the articles, the discovery of which entails a laborious search, as they seem to be inserted on no easily discoverable system. The index, occupying only eight pages, could easily have been considerable extended with profitable results to the reader. On the whole, however, the defects are slight, while the excellences are manifold, and the general plan and execution are admirable. To the general reader the work must long prove a boon, and to the specialist will be hardly less valuable.— J. A. A.

Brewster on 'Bird Migration.'— Mr. Brewster's important memoir* of 22 pages, forming No. I of the 'Memoirs of the Nuttall Ornithological Club,' consists of two papers relating to the subject of bird migration. The first (read at the last meeting of the American Ornithologists' Union, and here first published) is a detailed account of the author's observations made at the Point Lepreaux Lighthouse, where he spent the interval from Aug. 13 till Sept. 26, 1885, for the purpose of studying the movements of the birds on their autumnal journey southward. The locality and other circumstances proved exceedingly favorable for observing the behavior of birds under the fascination of a powerful light, and their manner of 'striking' these fatally alluring objects is well detailed, the narrative adding much to our knowledge of a matter previously little understood. The second part of the memoir deals with the general

* Memoirs of the Nuttall Ornithological Club. | — | No. I. | — | Bird Migration. | By William Brewster. | Contributed by courtesy of the American Ornithologists' Union's Committee on the | Migration and Geographical Distribution of North American Birds. | Part I.— Observations on Nocturnal Bird Flights at | the Lighthouse at Point Lepreaux, Bay of | Fundy, New Brunswick. | Part II.— Facts and Theories respecting the general | subject of Bird Migration. | — | Cambridge, Mass. | Published by the Club. | March, 1886. Imp. 8vo, pp. 22.

subject of bird migration, its causes and methods, based on the writer's long experience and mature reflection. The 'facts' here presented are of highest interest; the theories and suggestions, while original as regards their presentation in the present connection, are but to a small extent novel, and in the main confirmatory of hypotheses previously suggested; but for this reason they lose none of their interest or value. The paper is not only an able presentation of the subject in its general aspects, but is a valuable contribution to this interesting subject, through the presentation of much new and valuable matter.—J. A. A.

Minor Ornithological Publications.—The 'American Naturalist,' Vol. XIX, 1885, contains, besides extracts and abstracts from other publications, the following (Nos. 1037-1041):

1037. *A Crow* [*Corvus americanus*] *Cracking Clams.* By S. Lockwood. *American Naturalist*, Vol. XIX, April, 1885, p. 407.—By dropping them on a fence.

1038. *The Turkey Buzzard breeding in Pennsylvania.* By Witmer Stone. *Ibid*, p. 407.—Several instances of its breeding in Chester County recorded.

1039. *Birds out of Season—a Tragedy.* By Charles Aldrich, *Ibid.*, May, 1885, pp. 513, 514.—A Chewink (*Pipilo erythrophthalmus*), wintering at Webster, Ia., was finally killed by a Blue Jay, after it had for weeks braved a temperature of —20° to —35°.

1040. *Harelda glacialis at New Orleans.* By G. Kohn. *Ibid.*, Sept. 1885, p. 896.—An old male in winter plumage was shot on Lake Catherine Feb. 28, 1885.

1041. *The Problem of the Soaring Bird.* By I. Lancaster. *Ibid.*, Nov. and Dec. 1885, pp. 1055-1058, 1162-1171.

'Science,' Vols. V and VI, 1885, contains the following (Nos. 1042-1054):

1042. *The coming of the robin and other early birds.* By Dr. C. Hart Merriam. *Science*, Vol. IV, pp. 571, 572.—On the arrival of the Robin (*Merula migratoria*) at various places in North America in the spring of 1884, and a summary statement of the average dates of arrival of various other species in the latitude of New York City and Southern Connecticut.

1043. *A second phalanx in a carinate bird's wing.* By Dr. G. Baur. *Ibid.*, V, May 1, 1885, p. 355.—"A rudiment of a second cartilaginous phalanx in the third digit" found "in an embryo of *Anas domestica*."

1044. *A complete fibula in an adult living carinate-bird* [*Pandion carolinensis*]. By Dr. G. Baur. *Ibid.*, May 8, 1885, p. 375.

1045. *A complete fibula in an adult living carinate-bird* [*Colymbus septentrionalis*]. By Dr. R. W. Shufeldt. *Ibid.*, June 26, 1885, p. 516.

1046. *Untimely death of a chipping sparrow.* By W. L. Poteat. *Ibid.*, VI, July 24, 1885.—Hung by the neck by becoming entangled in a horse-hair from its nest.

1047. *The Audubon collection of birds presented to Amherst college.* Editorial. *Ibid.*, Aug. 14, 1885, 140.—"There are about six hundred skins

of birds in the collection. some of which are labelled in the handwriting of Audubon himself, and many of which are the typical specimens by which the species were determined." About one hundred of them have been mounted by Prof. H. A. Ward of Rochester. The collection is the gift of the Hon. Elbert E. Fairman, LL. D., of Warsaw, N. Y.

1048. *The English sparrow.* By Ralph S. Tarr. *Ibid.*, Nov. 6, 1885, 416.—On the dates of its introduction, increase, food, and the policy to be pursued toward the bird.

1049. *A search for the gigantic bird* [*Æpyornis*] *of Madagascar.* Anon. *Ibid.*, p. 418.—It "was probably exterminated very soon after the advent of man in the region it inhabited."

1050. *The English sparrow.* By A. L. Child, M.D. *Ibid.*, Nov. 27, 1885, 478.—Chiefly on its spread in the West. "The condemned sparrow seems to be entire master of the position."

1051. *The English sparrow.* By Jos. F. James and G. C. Henning. *Ibid.*, Dec, 4, 1885, pp. 497, 498.—Chiefly on its habits—its driving away native birds, and depredations upon small fruits and pears.

1052. *The English sparrow.* By Ralph S. Tarr. *Ibid.*, Dec. 11, 1885, p. 520.—Advises offering a small bounty for their nests and eggs, etc.

1053. *The English sparrow.* By P. J. Farnsworth and John Nichols. *Ibid.*, Dec. 18, 1885, p. 541.—In defence of the bird.

1054. *The English sparrow.* By Ralph S. Tarr. *Ibid.*, Dec. 25, 1885, p. 563.—Gives an extract from the London 'Academy,' showing how "the bird is viewed in England." The quotation strongly denounces the Sparrow.

1055. *Report of the Ornithological Branch* [*of the Ottawa Field Naturalists' Club*]. By W. L. Scott and George R. White. *Trans. Ottawa Field Nat. Club*, Vol. II, No. 2, 1885, pp. 272-280.—Nine species are added to the list of Ottawa Birds; there are notes on 12 other species, "rare in this locality or recently added to our local list," followed by a list giving dates of arrival birds observed in the spring of 1884.

1056. *Ravages of Rice-Birds.* By Hon. Warner Miller. *Congressional Record*, 49th Congress, June 11, 1886, p. 5747.—A loss of $6.87 per acre caused by the Rice Birds to the rice crop, and the total annual loss to one plantation is estimated at $8,250.

1057. *The English Sparrow in the United States.* By Hon. Warner Miller. *Ibid.*, pp. 5747, 5748.—"The indications are that if the English Sparrow is allowed to go unchecked it will not be long before the annual loss of grain and fruit products due to his ravages will be in amount sufficient to pay the interest on our national debt, if not the debt itself. Few persons have any conception of the scourge he has proved wherever he has been naturalized in foreign lands, and he threatens to become a greater pest to the American farmer and horticulturist than the grasshopper, caterpillar, and Colorado beetle."

1058. *Preliminary List of the Birds known to breed on Staten Island.* By Arthur Hollick. *Proc. Nat. Sci. Ass. Staten Island.* Extra No. 4, Dec., 1885.—A nominal list of 67 species, published as a one-page leaflet.

1059. *Diurnal Rapacious Birds.* (*With special reference to Chester County, Pa.*) By B. Harry Warren, M.D. *Agriculture of Pennsylvania*, 1883 (1884), pp. 96-112.—A very important paper on the food of various species of Hawks, with report of numerous examinations of the contents of stomachs.

1060. *Blackbirds' Food. Facts from the Diary of a Field-Working Naturalist, Showing the Piscivorous Habit of two Species of the Genus Quiscalus.* By B. H. Warren, M.D., Ornithologist of the Board [of Agriculture]. *Ibid.*, Rep. for 1885 (1886), pp. 157-159.—Statistics of examinations of stomachs of numerous specimens of *Quiscalus purpureus* and *Q. major.*

1061. *Birds' Food.* By B. H. Warren, M.D. *Ibid.*, pp. 150-156.—On the food of the *Turdus migratorius* and *Mimus carolinensis.*

1062. *The Common Crow Blackbird—Purple Grackle. Quiscalus purpureus* (*Bartr.*). By B. Harry Warren, M.D. *Ibid.*, 1883 (1884), pp. 214-217.—On its habits and food.

1063. *Die Purpurschwalbe* (*Progne subis Baird, Purple Martin*). By H. Nehrling. *Der Zoologische Garten*, Jahrg. XXVI, No. 1, 1885, pp. 22-27.—History of the species.

1064. *Der Grünsänger* (*Dendroica virens Baird. Black-throated Green Warbler*). By H. Nehrling. *Ibid.*, No. 3, pp. 82-85.

1065. *Der Heckensänger, Dendroica pensylvanica Baird, Chestnut-sided Warbler.* By H. Nehrling. *Ibid.*, No. 6, pp. 185, 186.

1066. *Der Wurmsänger, Helmitherus vermivorus Bonap., Worm-eating Warbler.* By H. Nehrling. *Ibid.*, No. 7, pp. 214-215.

1067. *Der Blauflügelige Buschsänger, Helminthophaga pinus Baird. Blue-winged Yellow Warbler.* By H. Nehrling. *Ibid.*, No. 12, pp. 364-366.

1068. *Ein kalifornischer Charaktervogel.* Von H. Nehrling. *Ibid.*, Jahrg. XXVII, No. 3, 1886, pp. 87-90.—An account of the Phainopepla (*P. nitens*).

The present index to minor papers and notes on North American birds was begun in January, 1880, in the first number of the fifth volume of the 'Bulletin of the Nuttall Ornithological Club,' with the heading 'Minor Ornithological Papers,' with the purpose of giving short notices or abstracts of the more important papers and notes relating to American birds, appearing in publications not usually conveniently accessible to working ornithologists, in continuation of Dr. Coues's 'List of Faunal Publications relating to North American Ornithology,' published in his 'Birds of the Colorado Valley' in 1878. The scope of the index was at first limited to notes or papers of special value, particularly those having the character of local lists, or bearing upon the migration or distribution of species, excluding, however, such as were anonymous, or pseudonymous. Later the scope was enlarged to include everything worth citing relating to North American birds, wherever published, unless appearing in journals strictly devoted to ornithology. The compiler is aware that the record must be far from complete, particularly as regards newspapers, but it is believed

to fairly cover the 'Proceedings' and 'Memoirs,' etc., of scientific societies, the literary magazines, papers devoted to field sports, and scientific periodical literature. The number of titles cited already exceeds one thousand and it seems now desirable to give a list (here following) of the principal publications indexed, with references to the volumes and pages of the 'Bulletin' and 'Auk' where these indexes have been published.—J. A. A.

American Entomologist (new ser.)	Vol. I	Bull., V, 1881	Page 53	Titles	132-140.
American Field	" XVII—XX	Auk, I, 1884	" 186-188	"	544-569.
"	" XI, XII	" II, 1885	" 212-214	"	316-345.
American Naturalist	" XII—XIV	Bull., VI, 1881	" 51-53	"	101-131.
"	" XV—XVII	Auk, I, 1884	" 55-87	"	455-503.
"	" XVIII	" II, 1885	" 210	"	733-792.
"	" XIX	" III, 1886	" 189, 190	"	1037-1041.
Bull. Buffalo Nat. Field Club	" I	" I, 1884	" 284, 295	"	595-607.
Canad. Sportsm. & Nat.	" I, II	" I, 1884	" 88, 89	"	504-522.
"	" III (pt.)	" I, 1884	" 185-186	"	523-543.
"	" III (pt.)	" II, 1885	" 209	"	773-775.
Chicago Field	" X—XII	Bull., V, 1886	" 180, 181	"	49-54.
"	" XIII, XIV	" VII, 1882	" 115	"	101-104.
Familiar Sci. & Fancier's Journ.	" V, VI	" V, 1880	" 113-115	"	26-48.
Field and Forest	" III	" V, 1880	" 112	"	19-25.
Forest and Stream	" XI—XIII, No. 19	" V, 1880	" 43-45	"	1-14.
"	" XIII, No. 20—XIV	" VI, 1881	" 48-50	"	71-100.
"	" XV	" VI, 1881	" 112, 113	"	142-159.
"	" XVI, XVII	" VII, 1882	" 115-117	"	105-182.
"	" XVIII, XIX	" VIII, 1883	" 116-119	"	190-235.
"	" XX, XXI	Auk, I, 1884	" 285-289	"	669-668.
"	" XXII, XXIII	" II, 1885	" 295-302	"	540-993.
Journ. Cincinnati Soc. Nat. Hist.	" V	Bull., VIII, 1883	" 171, 172	"	241-253.
"	" VII	Auk, II, 1885	" 211	"	812.
Oölogist	" IV, V	Bull., VI, 1881	" 47, 48	"	55-70.
"	" VI	" VIII, 1883	" 173-178	"	269-303.
Ornithologist and Oölogist	" VII	" VIII, 1883	" 234-238	"	372-440.
"	" VII	Auk, I, 1884	" 96-101	"	669-772.
Quart. Journ. Boston Zoöl. Soc.	" I, II	Bull., VIII, 1883	" 233	"	365-371.
Rund. Notes on Nat. Hist.	" I, II	Auk, III, 1886	" 270-272	"	1003-1036.
Science	" I, II	" I, 1884	" 188, 189	"	570-594.
"	" III, IV	" II, 1885	" 210, 211	"	792-805.
"	" V, VI	" III, 1886	" 475, 476	"	1042-1054.
Science News	" I	Bull., V, 1880	" 45, 46	"	15-18.
Science Record	" I, II	Auk, II, 1885	" 211	"	806-811.
Stearns's Bull. Mass. Nat. Hist.	" I	" II, 1885	" 209	"	776-782.
Ward's Nat. Sci. Bull.	" I, II	Bull., VIII, 1883	" 172, 173	"	259-266.
Zoölogist	" VI—IX	Auk, II, 1885	" 373-375	"	979-1002.
		Bull., VII, 1882	" 117, 118	"	183-189.
		" VIII, 1883	" 171	"	236-240.
		" " "	" 173	"	267, 268.
Magazines, Newspapers, Proc. of Societies, etc		Auk, II, 1885	" 238	"	447-454.
		" " "	" 212	"	813-815.
		" III, 1886	" 372, 373	"	965-978.
			" 476, 477	"	1054-1068.

Edson on the Birds of Chatauqua County, N. Y.—In a brochure* of 14 pages Mr. Edson gives an annotated list of 150 species, embracing only such as have come under his own notice during several years of observation in the central part of the County. The author says that many others might doubtless have been added with safety, but he commendably refrains from including them till he can add them authoritatively. The list consequently includes, in the main, only the more common species. Unfortunately the list is greatly marred by typographical errors, for which, however, the author cannot be held responsible, it having been printed, as we are informed, without his revision of the proofsheets. It would be hard to find a worse specimen of printing in respect to the technical names of the species.—J. A. A.

Shufeldt on the Osteology of Conurus carolinensis and Geococcyx californianus.—In a paper† of nearly twenty pages accompanied by two beautiful plates, Dr. Shufeldt has given us another memoir on the osteology of American birds, this time treating of the Carolina Paroquet, a form doubtless soon to be added to the list of species exterminated by man's agency. Besides giving a detailed description of the bones of the skeleton, he adds a convenient synopsis of the skeletal characters of the species.

A second paper‡ of similar character deals with the Road-runner, and is illustrated by three excellent plates. It is needless to say that both papers are valuable contributions to avian osteology.§—J. A. A.

Publications Received.—**Allen**, J. A. (1) A Revised List of the Birds of Massachusetts. (Bull. Am. Mus. Nat. Hist., I, No. 7, pp. 221-271.) (2) The Masked Bob-white (Colinus ridgwayi) of Arizona, and its Allies. (*Ibid.*, pp. 273-290, pl.)

Blasius, W. Beiträge zur Kenntniss der Vogelfauna von Celebes, II. (Zeitsch. für die ges. Orn., 1886, Heft. II.)

Blasius, R., J. Rohweder, R. Tancré, and A. Walter. IX. Jahresbericht (1884) des Ausschusses für Beobachtungsstationen der Vögel Deutschslands. (Journ. für Orn., Jahrg. 1886, April-Heft.)

Edson, John M. Birds of Chatauqua County, N. Y., 1886, pp. 14. (Jamestown, 1886, Geo. H. Tiffany.)

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* Birds of Chautaqua County. An Address delivered before the Chautaqua Society of History and Natural Science, at its semi-annual meeting held in Jamestown, January 29, 1885. By John M. Edson. Jamestown: Geo. H. Tiffany, 1886. Large 8vo pp. 14.

† Osteology of Conurus carolinensis. By R. W. Shufeldt, M.D., Medical Corps U. S. Army [etc.]. < Journ. of Anat. and Phys., Vol. XX, pp. 407-425, pll. x, xi.

‡ The Skeleton in Geococcyx. By R. W. Shufeldt, Med. Dept. U. S. Army [etc.]. < Journ. Anat. and Phys., Vol. XX, pp. 244-266, pll. vii-ix.

§ We notice that in our copy of the paper on *Conurus carolinensis* the author has corrected the description of the plate to read *right* pectoral limb, and right humerus instead of left, respectively, as printed.

Evermann, B. W. A List of the Birds observed in Ventura County, California. (Auk, 1886, pp. 86-94, 179-186.)

Fox, W. H. List of Birds found in Roane County, Tennessee, during April, 1884, and March and April, 1885. (Auk, 1886, 315-320.)

Harvie-Brown, J. A., J. Cordeaux, R. M. Barrington, A. G. More, and W. Eagle Clarke. Report on the Migration of Birds in the Spring and Autumn of 1885. Seventh Report (Vol. II, No. 2). 8vo., 1886, pp. 173.

Merriam, C. Hart. (1) Circular on the Food-habits of Birds. (Agricultural Department, Division of Ornithology and Mammalogy, Circular No. 1.) (2) Circular on the English Sparrow. (Ibid., Circular No. 2.) (3) Circular on the Economic Relations of Mammals. (Ibid., Circular No. 3.) (4) Instructions for the Collection of Stomachs. (Ibid., Circular No. 4.)

Lattin, F. H. Checking List of North American Birds. 8vo., 1886, pp. 8.

Meyer, A. B. Notiz über Lophorhina minor (Rams.) und Euthyrhyncha fulvigula Schl. (Zeitsch. für die ges. Orn., 1886, Heft. II.)

Seton, E. E. T. The Birds of Western Manitoba. (Auk, 1886, pp. 145-156, 320-329.)

Shufeldt, R. W. (1) The Skeleton in Geococcyx. (Journ. Anat. and Phys., XX, 1886, pp. 244-266, pll. vii-ix.) (2) Osteology of Conurus carolinensis. (Ibid., pp. 407-425, pll. x, xi.)

Warren, B. H. (1) Diurnal Rapacious Birds. (Agricult. of Penn., 1883 (1884), pp. 96-112.) (2) The Common Crow Blackbird — Purple Grackle. (Ibid., pp. 214-217.) (3) Blackbirds' Food. (Ibid., 1885 (1886), pp. 157-159.) (4) Birds' Food. (Ibid., pp. 150-156.)

American Field, XXV, Nos. 1-26, XXVI, Nos. 1-12, 1886.

American Naturalist, XX, July-Sept., 1886.

American Journal of Science, XXXII, July-Sept., 1886.

Anzeiger, Zoologischer, Nos. 225-240, 1876.

Bulletin Essex Inst. XVII, Nos. 4-12, 1885.

Bulletin California Acad. Sci. II, No. 5, Sept., 1886.

Hoosier Naturalist, I, Nos. 11, 12, II, No. 1, June-Aug., 1886.

Forest and Stream, XXV, Nos. 23-26, XXVI, Nos. 1-26, XXVII, Nos. 4-8, 1886.

Journal Cincinnati Soc. Nat. Hist., IX, No. 2, July, 1886.

Mittheilungen des Orn. Vereins in Wien, Jahr. X, Nos. 17-19, 1886.

Naturalist, The, A Monthly Journ. Nat. Hist. for the North of England, Nos. 132-134, July-Sept., 1886.

Ornis, Jahrg. I, Heft. 4, 1885.

Ornithologist and Oölogist, XI, Nos. 6-8, June-Aug., 1886.

Proceedings U. S. Nat. Mus., 1886, pp. 1-160.

Random Notes on Nat. Hist., III, 7-9, 1866.

Young Naturalist's Journal, I, No. 8, July, 1886.

Zoologist, X, Nos. 115-117, July-Sept., 1886.

GENERAL NOTES.

Occurrence of the Yellow-billed Tropic Bird in Florida.— Although this species is common enough in the West Indies, it does not seem to have been observed many times on the mainland of North America, even along the coast of Florida. On this account a specimen, shot April 21, 1886, on Bananna River, at the southern end of Merritt's Island, Florida, may be worth recording. I had the bird of Mr. C. J. Maynard, for whom it was collected by a Mr. Peterson. It is a female, in immature and rather ragged plumage. Mr. Maynard tells me that it was captured just after a series of southeast gales.—WILLIAM BREWSTER, *Cambridge, Mass.*

The Breeding of Branta canadensis at Reelfoot Lake, Tenn.—On the 7th of June, 1886, I took a trip to Reelfoot Lake, situated in the extreme northeastern part of Tennessee and distant about twelve or fourteen miles from Hickman, Ky. My first intimation of the breeding of the Canada Goose at that place was while I was waiting for dinner at Mr. Carpenter's, who keeps a hotel for the benefit of persons visiting the lake, and also of himself. While watching some small birds in a tree near the house, I was attracted by the appearance of a flock of six Geese wandering about in the yard, and after looking at them a moment, I said to Mr. Carpenter "Are not those Wild Geese?" "Yes," he said, "I found six eggs on a stump in the lake and brought them home, set them under a tame Goose, and every one hatched." "Why," I said, "I did not know they would breed so far south." "O, yes," he answered, "they breed here every summer." These Geese were tamer than the common domestic Geese, eating out of his hand, etc. They made no effort to get away, though, had their wings not been clipped, they would probably have flown to the lake very soon.

Then after dinner when I was paddling a little plank canoe, a full grown Goose came flying along a little to one side of the canoe. I did not mistake it for any other bird. It was too close for that. I do not think it was hurt or sickly, it flew too swiftly and well for that.

Wishing to have still more proof on the subject, I asked a boy who often goes to the lake to fish and hunt, if he knew that the Wild Geese stayed there all summer. He answered, "Yes, I do. I've seen the young Geese round in the water many a time."

I think these facts go far to prove that the Wild Goose breeds at Reelfoot Lake.—L. O. PINDAR, *Hickman, Ky.*

Breeding of the White-faced Glossy Ibis in Florida.—I have lately obtained from Mr. C. J. Maynard a set of three eggs of the White-faced Glossy Ibis (*Plegadis guarauna*), taken April 18, 1886, at or near Lake Washington (the head of the St. Johns River), Florida. The nest was "in bushes, a few feet from the ground." The identity of the eggs is open

to no doubt, for they are accompanied by the skin of the female parent, which was shot on the nest. Mr. Maynard had the specimens directly from the collector, a young man by the name of Lapham.

If no mistake has been made in the authentication of the alleged eggs of *P. autumnalis* (=*falcinellus*) from Florida (see B. B. & R., Water Birds, Vol. I, p. 96), both species of Glossy Ibis breed together in that State. The *P. guarauna* has not been previously found breeding east of the Mississippi, as far as I can ascertain.—WILLIAM BREWSTER, *Cambridge, Mass.*

The Red Phalarope in the District of Columbia.—A Correction.—In 'The Auk' for January, 1886, the writer noted the occurrence of a Northern Phalarope on the eastern branch of the Potomac River, near Washington, in October, 1885. The statements made at that time regarding the capture and identity of the bird were given on the authority of the collector, Mr. Webster, who then had the specimen. A short time ago the bird in question came into the possession of the National Museum (catalogue number 109,213) and has been identified as a young specimen of the Red Phalarope (*Crymophilus fulicarius*). In making this correction I at the same time add this rare species to our avian fauna.—HUGH M. SMITH, *Washington, D. C.*

Ægialitis meloda circumcincta on the Atlantic Coast.—During a recent hurried visit to the Museum of the College of New Jersey, at Princeton, N. J., I noticed, in looking over the beautifully mounted Scott collection of birds, two specimens, male and female, in adult spring plumage, of the Belted Piping Plover, taken by Mr. W. E. D. Scott at Long Beach, Barnegat Bay, N. J., in April, 1877. On referring to the series of skins two other specimens were found, taken at the same time and place as the above, in which the pectoral band was complete but narrow. The specimens first mentioned above have the pectoral band broad and continuous—typical representatives of var. *circumcincta*.

In the same collection I found also two skins of typical *circumcincta* taken by Mr. Nathan Clifford Brown, on the Scarborough marshes, near Portland, Maine, respectively May 17, 1878, and May 2, 1880. Thus in a series of thirteen specimens of the Piping Plover taken on the Atlantic Coast, contained in the Museum of Princeton College, four were typical of var. *circumcincta*. These specimens appear to have been unrecorded till briefly mentioned by me in the 'Additions and Corrections' to my 'Revised List of the Birds of Massachusetts,' recently published in the 'Bulletin of the American Museum of Natural History,' Vol. I, No. 7.

Mr. Ridgway and Dr. Brewer (Water Birds of North America, Vol. I, 1884, pp. 161, 163) mention this variety as occasionally occurring along the Atlantic Coast, though mainly restricted to the Missouri River region. Mr. Cory (A Naturalist in the Magdalen Islands, 1878, p. 61), however, has recorded it as "abundant" in the Magdalen Islands, and judged it

"possible that its range may extend to *Anticosti, or even to Labrador*," he believing that many of the migrants of this species he saw at the Magdalens came from further north.— J. A. ALLEN, *Am. Mus. Nat. Hist., New York City.*

Bonasa umbellus in the Alpine Region of South Carolina.—The more recent writers on South Carolinian ornithology have regarded the occurrence of the Ruffed Grouse in the State as an open question. While on an ornithological tour to the mountainous portions of Pickens County, during the past summer, I had a good opportunity to learn something of its local abundance and distribution. About Mt. Pinnacle (the highest point in the State, 3,436 feet) and Table Rock (3,000 feet), I found it a common bird, ranging from the valleys of the Saluda and Oolenoe up the mountain sides to their summits. Later in the season I traced the 'Pheasant' to the King's Mountain chain (a part of which lies in York County), where, although not common, it is well known to everyone. Several years ago I saw a mounted specimen in the collection of the late Dr. Marshall of Greenville, which was said to have been taken in that county. From the foregoing, it is reasonable to infer that the habitat of the Ruffed Grouse in South Carolina is co-extensive with the Alpine region of the northwestern border counties — a wedge-shaped area, extending from King's Mountain on the east to the Georgia line on the west, having a length of about one hundred and fourteen miles, and a breadth of from eight to twenty-one miles.—LEVERETT M. LOOMIS, *Chester, S. C.*

The Type Specimen of Colinus ridgwayi.—In my recent paper on this species (Bull. Am. Mus. Nat. Hist., Vol. I, No. 7, p. 276) I referred to the original type specimen of the Masked Bob-white (*Colinus ridgwayi*) as being in the collection of Mr. F. Stephens. I was subsequently informed that it had been sent to the British Museum, and on the strength of this information added an *erratum* to this effect. I have now learned that the specimen is not in the collection of the British Museum but in that of Mr. G. Frean Morcom, of Chicago, who recently purchased it of Mr. Stephens.— J. A. ALLEN, *Am. Mus. Nat. Hist., New York City.*

A Red-headed Black Vulture.—During my first visit to Charleston, South Carolina, in May, 1883, I was one day watching the Black Vultures which, at certain hours, congregated by hundreds in the streets and on the house tops about the city market, when my attention was attracted to one that differed from all others of its kind that I had hitherto seen in having the entire bill yellow and the bare skin of the head and neck uniformly red, similar to, but of a duller tint than, the head of *Cathartes aura*. That the bird was not a Turkey Buzzard but, on the contrary, either a Black Vulture or something very near it, was evident from its flight and the shape of the wings and tail. I suspected that it might be a hybrid, but there was no way of securing the specimen at the time and I never saw it again.

Through Mr. Wayne's kindness, however, I have just come into posses-

sion of a similar—if not the same—bird taken at the Charleston market in August, 1886. Mr. Wayne bought this specimen for me from the taxidermist who mounted it and who, unfortunately, is able to furnish no precise information respecting the color of the soft parts in life, save that "the head was red like a Turkey Buzzard's." In the dried specimen the bill is dull straw-color, the bare skin of the head and neck yellowish-brown, the legs, feet and claws pale brownish-orange. The head and neck are also tinged with purple, but this is evidently the result of a clumsy attempt to reproduce the original color, for the dye has stained some of the feathers as well as a portion of the tow protruding from the eye socket. In all other respects—excepting that the bill is unusually depressed and the fifth primary on each wing white to its base—the bird agrees perfectly with average specimens of the Black Vulture. That it is merely an abnormally colored example of that species is sufficiently obvious, but its peculiarities are certainly at once interesting and curious.—WILLIAM BREWSTER, *Cambridge, Mass.*

The Swallow-tailed Kite in Rensselaer County, New York.—In my collection is a specimen of an *Elanoides forficatus*, mounted by Mr. William Gibson, of Lansingburg, N. Y., who told me that he received the dead bird July 17, 1886, from Mr. Griffin Haight, and that by dissecting the bird he found it was a male. Its plumage is that of an adult, and is in partly worn and moulting condition. Wing, 15.6 inches; tail, 11.6, with fork, 5.6.

Mr. Haight has a little house on a newly cleared acre, in the border of a large wood-lot in the eastern part of the town of Pittstown, about sixteen miles northeasterly from the city of Troy, and there breeds fancy fowls which run about freely in the clearing and ajacent woods. He informs me that Hawks trouble his fowls and carry off some chickens, and on the morning of July 16 he staid at home to clean out a few of the Hawks, and had shot three, and just fired at another, when he was surprised to see, flying up from the woods by the clearing, a Swallow-tailed Kite, such as he had formerly seen in South Carolina. The Kite flew away and was gone about twenty minutes when it came down and lit on the dead stubby top of a tree by the clearing. After a few minutes, it flew up out of sight, but in about thirty minutes came down again and sat on the same dead tree-top for about seven minutes; it then flew up again out of sight. About fifty minutes later, *two* Kites came down together and lit on the same dead tree stub. As he started toward them the largest Kite flew away in a flash, and as he went nearer the other Kite darted up overhead; he fired and killed it, and sent the dead bird to Mr. Gibson to be mounted.

Mr. Haight informs me that he has since seen one or more of the Kites around a pond in a swamp of about four hundred acres, within two miles of his house; once on July 29, and several times on August 9. He also saw at a distance, on dead ash trees standing in the swamp, three or four birds having the appearance and flight of Kites, and they alighted like

young birds. He also observed one of the Kites about twenty rods off, sitting on a stub in the pond, in the latter part of August. He also tells me that on August 30, on higher ground, within a mile of his house, two of the Kites flew past him within fifty yards, and afterward coursed about together low over a field of buckwheat, as if catching insects. One of these Kites had a very long and deeply forked tail, and was larger than the other, which had its tail but little forked or nearly even at the end. Two other persons told me about seeing one or two of the birds at or near the same place.

From seeing the locality, and from the information received, it seems probable that a pair of Swallow-tailed Kites bred, in 1886, in Rensselaer County, N. Y., at about latitude 42° 53′, longitude 73° 33′, and near 600 feet above tide water level.—Austin F. Park, *Troy, N. Y.*

The Barn Owl at Englewood, N. J.—At about six o'clock on the morning of August 26, near the centre of a tolerably dense wood, I started from its roost of the previous night, a bird I was unable to identify, and which eventually escaped me. The ground and bushes beneath the tree from which it had flown were spattered with its droppings, some of them not yet dry, and here a number of feathers were found, undoubtedly shed by the bird which had passed the night above. These feathers, the basal half of a primary, a covert from either wing, and a number of smaller ones, were forwarded to Dr. A. K. Fisher at Washington, who has kindly identified them as the feathers of a Barn Owl (*Strix pratincola*).—Frank M. Chapman, *Englewood, N. J.*

Carnivorous Propensities of the Crow (*Corvus americanus*).—My neighbor, Mr. E. M. Davis, indulges in the luxury of live pets, and amongst them is a Crow, reared by hand from the nest and now perhaps three or four months old. He manifests the usual inquisitive and mischievous habits of the species in confinement, secreting various objects for which he can have no possible use, and worrying on all occasions both the cat and the dog of the premises, by picking at their toes, pulling their tails, etc. He seems to fear nothing but a small rubber hose used for sprinkling purposes, upon the first appearance of which, even before any water was thrown, he manifested the utmost fright, and fled to the house and his master for protection; this he has repeated whenever the hose appears. Query: Is it a case of hereditary fear of *snakes?* Quite recently a young House Sparrow (*Passer domesticus*), not fully fledged, was captured and taken into the happy family, pains being taken to keep it away from the *cat*, but not from the *Crow*, which, at its first introduction, pounced upon it savagely, seized it by the neck, shook it as a terrier does a rat, and before it could be released the Sparrow had gone the way of all birds; portions of it being eaten by its destroyer. As the Crow had been well fed, on a diet embracing meat, grain, and vegetables, the killing of the Sparrow would seem to have been the outcome of natural propensities rather than the result of the pangs of hunger.—F. W. Langdon, *Cincinnati, Ohio.*

On the Absence of Ammodramus lecontei from Chester County, South Carolina, during the Winter of 1885-86.—Mr. Brewster's mention, in the July number of 'The Auk,' of the capture of an example of Leconte's Sparrow in the lower section of the State, during the past winter, is of special interest, owing to the fact of its apparent absence in the vicinity of Chester C. H., where it has been a common and regular visitor for several winters past. Being desirous of fixing the date of its arrival, I began to look for it during the latter part of October, and continued my search with great thoroughness through the entire winter, but not a single specimen was seen. The early part of the season was unusually mild, and the Grasshopper Sparrow was found up to the 14th of December—an incident hitherto unnoted in the Piedmont region. January brought the severest weather known for years. As the Arctic wave came from the northwest, giving a temperature 10° lower in Chester than in New York, I expected Leconte's Sparrow with confidence, and kept constantly afield, but without success. It is worthy of remark that during this peculiar stress of weather the Horned Larks and other boreal birds, which frequently favor us with their presence during protracted cold, were wholly wanting.—Leverett M. Loomis, *Chester, S. C.*

Occurrence of Ammodramus caudacutus nelsoni in Massachusetts.—The Nelson's Finch was originally described by Mr. Allen, from near Chicago, and has been supposed to be strictly confined, in the breeding season, to fresh water marshes. Recently Mr. Ridgway has called my attention to specimens of this race from the salt marshes of Cambridge, Mass., which raise some interesting questions in regard to this form. The specimens are three in number, collected by myself as far back as 1871. Two were taken October 7, and their occurrence at this season, though interesting as adding a new bird to the Massachusetts list, need not occasion surprise, since the bird has been taken frequently near Sing Sing, New York, by Dr. Fisher, and is known to occur elsewhere on the Atlantic coast during the fall migrations.

The third specimen, however, occupies a different status. It was taken May 31, the lateness of which date would seem to preclude the possibility of it being a migrant. In fact, if I am not mistaken, I took eggs, supposed then to belong to *caudacutus* proper, on the very day in question.

The specimen appears on comparison to possess all the characteristics of the inland race, and though not so typical as some examples from Chicago, is scarcely to be distinguished from others.

The occurrence of this single specimen on the coast at this season may of course be entirely accidental. The bird may have drifted in, and finding the locality to its liking, may have remained to breed, mating perhaps perforce with one of the coast form. Those having Sharp-tailed Finches in their collections will do well to examine their series thoroughly with a view to the elucidation of the status of the two forms.—H. W. Henshaw, *Washington, D. C.*

Occurrence of Chondestes grammacus about Washington, D. C.—Up to date our knowledge of the occurrence of the Lark Finch in the neighborhood of Washington is limited to the capture of a single specimen by Mr. Roberts, August 27, 1877, and the observation of two individuals in the Smithsonian grounds, during the summer of the same year. To the above is to be added the capture of a second specimen, an adult male, August 8, 1886, by the writer. There is nothing in the nature of the capture to indicate that the bird was not an 'accidental.'—H. W. Henshaw, *Washington, D. C.*

Lincoln's Sparrow and the Blue-gray Gnatcatcher in Connecticut.—I have recently examined a female *Melospiza lincolni* taken at East Hartford, Conn., Sept. 21, 1885, by Mr. Willard E. Treat. It was accidentally killed when shooting *Geothlypis trichas*. He writes that on April 24, 1886, he winged another of these Sparrows but did not capture it. It was in thick brush and extremely shy.

May 7, 1886. Mr. Treat killed a female *Polioptila cærulea* at East Hartford. It was on the top of a high willow. This is, I believe, the third recorded capture of this Gnatcatcher for Connecticut.—Jno. H. Sage, *Portland, Conn.*

The Evening Grosbeak in Wisconsin.—I am glad to record the capture of a male specimen of the Evening Grosbeak (*Hesperophona vespertina*) at DePere, Wis., Nov. 28, 1885. This is the first authentic occurrence of the species in Brown County.—Samuel Wells Willard, *DePere, Wis.*

First Plumage of the Summer Tanager (*Piranga rubra*).—Underparts whitish-buff, heavily streaked on breast with dusky; throat and abdomen with lighter and more linear streaks of the same. Under tail-coverts reddish-buff with dark streaks. Head and upper parts dark brownish buff thickly spotted and streaked with dusky. Wings showing traces of dull red and green on primaries and secondaries. The first and second wing-coverts tipped and edged with buff, forming two distinct wing-bars.

The bird (No. 2084, ♂, Coll. C. W. Beckham), from which the above description is taken, was shot at Bardstown, Kentucky, on June 21, and was attended by both parents.

The call-note of the young Tanager is very different from any note of the adult birds. It is very full and sonorous and faintly suggestive of the Bluebird's ordinary whistle.—Charles Wickliff Beckham, *Bardstown, Ky.*

Two additional Massachusetts Specimens of the Prothonotary Warbler (*Protonotaria citrea*).—At the time of recording* the Prothonotary War-

*Auk, Vol. III, July, 1886, p. 410.

bler taken May 9, 1886, I had no idea that I should ever shoot another in Massachusetts. During the following August, however, I took two more in Concord, one August 17, on the banks of the main river about a mile below the town, the other August 23, on the Assabet, within fifty yards of the spot where the first (May) specimen was obtained. The first of these August birds was a young female, the second an adult male; both had completed the summer moult and perfected the autumnal plumage. I saw and fully identified each on the day before it was shot, Mr. Purdie being with me on one occasion (Aug. 22) as well as examining the freshly-killed specimen next day.

Both birds were restless and rather shy, flitting from place to place, frequently crossing and recrossing the narrow stream. For the most part they kept well up in the trees, seeming to prefer the denser foliaged ones, especially the swamp oaks (*Quercus bicolor*) among the broad, dark leaves of which they concealed themselves so successfully that I had the greatest difficulty in getting even a glimpse at them. They seemed perfectly at home in their strange surroundings, as indeed they might well be, for both the Concord and Assabet Rivers, with their densely-wooded banks and half-submerged thickets of black willows and button bushes, afford plenty of just such places as the Prothonotary delights in at the South and West.

Viewed in the light of this later experience the status of the Prothonotary Warbler as a Massachusetts bird presents an interesting problem. The May specimen, considered apart, might be consistently treated as a chance straggler from the South, especially as it occured just after a storm which prevailed along our entire eastern coast; but the appearance of two others, one of them a young bird, in the same locality, at the height of the return migration, seems to indicate that during 1886, at least, there has been a regular, if limited, flight into and from New England, and that the species has actually bred either within or to the northward of this region. That such a visitation is of annual recurrence is more doubtful, but it is certainly not impossible, especially when we consider that the Prothonotary is a bird of peculiar habits and tastes, and that the haunts which it loves are, in this region, neither numerous nor often visited by collectors. —William Brewster, *Cambridge, Mass.*

An Earlier Occurrence of the Prothonotary Warbler in Massachusetts. —In the last issue of 'The Auk' my friend Mr. Brewster, announces his taking a *Protonotaria citrea* in Concord, very properly considering it the first for the State, and I am aware that he will in the October number record his capture of two more in the same town, one of which I had the great pleasure of seeing alive as well as afterwards handling in the flesh. Let me note a fourth specimen that I have seen in the possession of Mr. George Dwelley. He assures me that he shot the bird, a male, from the foliage overhanging a creek, it falling into the water. This was in spring, several years ago, but not previous to 1880, in the town of South Abington, Plymouth County.—H. A. Purdie, *Boston, Mass.*

The Carolina Wren in Connecticut.—Mr. Willard E. Treat writes me that he took a male *Thryothorus ludovicianus* at East Hartford, Conn., March 18, 1886. It was in good condition, and had been seen since February 15 among some thick brush and tall weeds. This is, I believe, the third capture of this bird in Connecticut.—Jno. H. Sage, *Portland, Conn.*

The Red-breasted Nuthatch in Kentucky in Summer.—On July 16, while 'taking my ease' in a hammock, I saw a small bird skipping about the uppermost branches of an adjacent pine tree. Not being able to identify it, my ever-ready .22 cal. cane-gun was brought into requisition, when down came a Red-bellied Nuthatch (*Sitta canadensis*). Its presence at this latitude (37° 52′) and altitude (650 feet above tide-water) at this season of the year is very singular, and remains to be explained. Upon dissection the bird proved to be a female. The ovaries were much contracted but plainly discernible.—C. W. Beckham, *Bardstown, Ky.*

Singular nesting site of Wilson's Thrush.—It has long been a problem as to what use could be made of the old tin cans that fruits and vegetables have been preserved in, but it is now partially solved by a pair of Wilson's Thrushes choosing one to place its nest in. My two sons in passing through a piece of woods where this species is quite common, boy-like, kicked an old can lying on the ground when, to their astonishment, they made the discovery that it contained a nest and three eggs of the above species. The can rested on its side, the birds going in through a small hole in the cover (the entire end not having been cut). The nest was very wet and the eggs were addled, evidently having been deserted, owing to the heavy rains in early June. Unfortunately one egg was broken and the other two badly damaged, but the nest is perfect and the materials are typical of this species.—H. B. Bailey, *South Orange, N. J.*

The Eastern Bluebird at Fort Lyon, Colorado.—Four Eastern Bluebirds (*Sialia sialis*), two of each sex, were first seen here May 24 of this year. One male I collected, one female was killed by a cat. I found the nest of the other pair June 25. The young were then two-thirds grown. Old birds and young left July 14. The late arrival and nesting of these birds at this place where, during the four years I have been stationed here none have been seen, seems unusual.

S. arctica is abundant about the middle of March, but stays a few days only. *S. mexicana* is not found here.—P. M. Thome, *Capt. 22nd Inf., Fort Lyon, Col.*

Three Interesting Birds in the American Museum of Natural History: Ammodramus leconteii, Helinaia swainsonii, and Saxicola œnanthe.—As is well known, Leconte's Sparrow was described by Audubon (Birds of America, VII, p. 338, pl. 488) in 1843, from a specimen obtained on the Upper Missouri. Audubon says: "Although we procured several

specimens of this pretty little Sharp-tailed Finch. I have at present only one by me, a fine male, however, shot by Mr. J. G. Bell, of New York, on the 24th of May." He gives its habitat as "Upper Missouri prairies. Common." Professor Baird, in 1858, says (Birds of North America, 1858, p. 452): "I am obliged to copy the description of this rare Sparrow from Mr. Audubon, as I have no skin at hand. The type of the species was presented to me by Mr. Audubon, but it has somehow been mislaid." In the 'History of North American Birds' (Vol. I, 1874, p. 552) a second specimen is recorded as having been "received by the Smithsonian Institution from Washington Co., Texas, collected by Dr. Lincecum," but "in very poor condition, having been skinned for an alcoholic preparation and does not admit of a satisfactory description of the colors." This, then, was the only specimen known to be extant when the species was re-discovered in 1873 by Dr. Coues, "near Turtle Mountain, on the border of Dakota, latitude 39°," where a number were found together on August 9—the only occasion when they were noticed. The subsequent remarkable history of this long lost species need not be recounted, it having been found of late in numbers from the Upper Missouri region to as far south and east as South Carolina.

A specimen in the Maximilian Collection in the American Museum of Natural History, New York City, proves that a second specimen was really extant during this long interval. It still bears the original label in the handwriting of the Prince, as follows: "Ammodramus LeContei Audub. (Emberiza Audub.) Missouri. Mas." In the manuscript Catalogue of the Maximilian Collection (p. 171, genus 515, sp. 3) it is recorded as follows: "[Coturniculus] Lecontei Audub.: Bp.: (Ammodramus Lecontei Gray). Nord America, am oberer Missouri." There is no further clue to its history, but doubtless it was taken by the Prince on his North American journey, 1832-34, and hence some ten years before the discovery of the species by Audubon. As the Maximilian Collection was transferred to the American Museum in 1870, this specimen was in New York City for three years prior to the re-discovery of the species by Dr. Coues.

The specimen (No. 1916) is in an excellent state of preservation, though doubtless taken not less than half a century ago.

Another specimen of historic interest in the collection of the American Museum of Natural History is one of the original Bachmanian specimens of Swainson's Warbler (No. 25,348). This is from the Elliot Collection, Mr. Elliot having received it from Professor Baird.

A third specimen, of much local interest, is an example (No. 1236. ♀ ad.) of a Wheatear (*Saxicola œnanthe*), from the collection of Mr. D. G. Elliot, taken on Long Island, N. Y., but the date of capture is not given. It appears not to have been previously recorded.—J. A. Allen, *Am. Mus. Nat. Hist., New York City.*

Four Rare Birds in Northern California: Yellow Rail, Emperor Goose, European Widgeon, and Sabine's Ruffed Grouse.—While on the coast of Northern California in December, 1885, I visited the ornithological col-

lections of Mr. Charles Fiebig, who lives at Eureka, on Humboldt Bay. As Mr. Fiebig had informed me upon my arrival, that all his birds had been shot in the vicinity of Humboldt Bay, I was surprised and interested to find in his collection specimens of the Yellow Rail, the Emperor Goose, the European Widgeon, and Sabine's Ruffed Grouse, which I saw at once were rather extra-limital species, particularly the first two. Mr. Fiebig's account of these was as follows (transcribed from my note book):

Porzana noveboracensis. One specimen 1884, shot on the marsh at the mouth of Freshwater Creek, flowing into Humboldt Bay. A *pair* were seen but only one secured.

Philacte canagica. One specimen obtained on the bay in the winter of 1884. Others seen at long intervals.

Mareca penelope. One specimen shot on the bay in the winter of 1884. The only record of its occurrence there, according to Mr. Fiebig and the sportsmen of Eureka.

Bonasa sabinii. Only one specimen in the collection, but met with on several occasions in the deepest portions of the surrounding redwood forest.

Mr. Fiebig, now a very old man, is a German who came to America about 1850, and worked at his trade of wagon-making, in the city of Washington, until the war broke out, when he enlisted in the Union Army, and afterward settled in California. While living in Washington he became acquainted with North American birds by studying the Smithsonian collections. He is a taxidermist of far more than ordinary ability, but practices the art only as a pastime. His method of mounting is unique; after removing the skin, he carves a model of the bird's body in soft wood, with great exactness. The effigy is then covered with the skin, and the bird, after the eyes are added, is complete. I am bound to say that this is done with the skill of an artist, and the results secured by this method are excellent. Mr. Fiebig gave me an interesting account of his experiences as a Duck hunter on the shores of the Baltic Sea, when a boy.—Chas. H. Townsend, *Smithsonian Institution, Washington, D. C.*

CORRESPONDENCE.

[*Correspondents are requested to write briefly and to the point. No attention will be paid to anonymous communications.*]

The Classification of the Macrochires.

[Second Letter.]

To the Editors of the Auk:—

Sirs: If the valuable space in the section reserved for your correspondence will admit of it, I have a few words to say in regard to the criticism passed upon my classification of the Macrochires, so far as I defined

it in my contribution to the 'P. Z. S.' (1885), by Doctor Stejneger in the July number of 'The Auk.'

Dr. Stejneger asks, "Is it possible that Dr. Shufeldt has overlooked the *many* points in which Swallows and Swifts disagree outside of the skeleton?" To this I can answer that I duly took into consideration all of those characters, both internal and external, now generally known to us, when I came to draw up my conclusions in the 'P. Z. S.' memoir, wherein, as the Doctor remarks, the skeletal characters alone appear to have swayed me in my decisions. I am not only conversant with the "*many* points" of difference existing between Swallows and Swifts, but am becoming more convinced every day of the '*many*, *many* points' of structural difference existing between the Trochili and Cypseli.

Further along in his criticism, when reviewing for my benefit some of the more prominent differences existing between the Swallows and Swifts, as Dr. Stejneger comprehends their structure, he contends that "internally they differ in a great number of points, but we shall only mention that the Swifts have a sternum, while the Swallows have the manubrium bifurcate and the posterior border deeply two-notched." Reading this sentence over carefully a number of times I must confess that its author does not make quite clear to my mind the kind of comparison he wishes to institute between the sternum of a Swift and a Swallow. No one probably will deny "that the Swifts have a sternum," though many might take exception to the remark that that bone was "two-notched" in the Swallows. To be sure it has *a pair* of notches in its xiphoidal extremity; but as generally described, the two-notched sternum is seen in such forms as *Picus*.

Again, Dr. Stejneger asks me in his criticism, "but what differences are there in the Swifts' flight from that of the Swallows' that should have caused such a remarkable modification towards the Humming-birds?" (p. 406). My answer to this question will also constitute a reply to the two succeeding questions of my critic, as it will, I hope, still further impress upon the minds of systematists the warning, already given in my 'P. Z. S.' memoir, that the similarities of certain structures existing between the Cypseli and Trochili are for the most part due to the modification of these structures gradually brought about by the habits or actions of the forms in question. Surely Dr. Stejneger would never have asked the question I have first quoted from him if he had ever had the opportunity to compare in nature the flights of two such birds for example as *Micropus melanoleucus* and *Tachycineta thalassina*. Many a time have I stood in the deep, rocky cañons of New Mexico, and seen one of the former birds pitch down from its dizzy position in the air above, with a velocity that taxed the very eye of the observer to follow, to its nest in the side of the precipice below; check itself suddenly at its entrance; hover for an instant, like a Hummingbird over a flower, with its wings in rapid motion, then enter,—to be gone but a moment,— when it makes its appearance again as if shot from a gun, to be off with the swiftness of the bullet. How different is all this from the flight of the pretty little Violet-green Swallow, with it slight and easy motion, rarely hurried and never precipitous!

Anatomists have long known that in avian forms, such as the Cypseli and Trochili, wherein the powers of flight have through time been brought to great perfection and capable of a high degree of velocity, that it is necessarily accompanied by corresponding modifications of structure, such as a deepening of the sternal keel, and changes "in the shape of the humerus and its processes," as remarked upon by Dr. Stejneger. That the *corresponding* "processes" have become more conspicuous is not to be wondered at when we think for a moment and take into consideration the fact that they probably *have been acted upon by the corresponding muscles involved in the flight*. In other words, when we come to sift out the characters wherein the Cypseli and Trochili *principally* agree we find them to be just such ones as I have elsewhere pointed out. and in each instance are found to be structural characters, the modifications of which are due to similar habits of the forms in question, but this by no means satisfies my mind that the groups should be, or are closely affined. I think sometimes taxonomists too often lose sight of the lines of descent of the class Aves in time, and in their eagerness to show relationship of the remnants of existing forms or groups in recent times, overlook the great gaps that probably exist among the twigs of the branches and stems that represent the tree of their pedigree.

Notwithstanding Dr. Stejneger's warning against placing too much reliance upon the skeletal characters for our guidance, I must still insist that the characters (as we find them in forms which we are comparing) of the skull and axial skeleton are among the most reliable if not *the* most reliable we have. If there be better ones in any vertebrate organization I have not been so fortunate as yet to have met with them. If I find that the number of *vertebræ* constantly differed in any two birds, and their skulls are of a radically different type, why I would no more be swayed from my opinion that they were members of a different order, as orders are regarded in ornithology, than I could be brought to the belief that anatomical characters are valueless in taxonomy. Certainly finding an additional pair of primaries or secondaries in the wing, in either case, would have but little weight towards altering my first opinion, based as I say, on what I had found in the cranium and column. Now to take the skull of a Swift and a Hummingbird as an example, *all*, absolutely *all*, of the leading characters as we find them in the representatives of these two groups are at variance while quite a number of these characters agree in this part of the skeleton with the Swallows and Swifts, and others can easily be shown in the latter birds to be demonstrable departures due, probably, to unknown causes from the typical passerine ones.

Since the appearance of my memoir in the 'P. Z. S.' a considerable amount of material (Macrochires) has come to my hands, thanks to some of the members of the A. O. U. and associate members, and others. A superficial examination of some of this but satisfies me of the correctness of my first conclusions, and if those conclusions are to be modified at all it will be in regard to the Swifts, which I think can be shown to be a group of birds also entitled to a separate order, as orders go in systematic ornithology,

as well as the Trochili and Caprimulgi. This order Cypseli would stand between the Trochili and Passeres, but as I am soon to have my second contribution to this subject in hand, all such questions will therein be considered.

I have a large collection of alcoholics now at my disposal, and am only waiting to secure a better assortment of the Nightjars and Trogons before undertaking the work, or rather pushing it, as many of the drawings are already completed.

In the mean time, permit me to say to those who may be interested in this subject that I deem it quite a possible thing that an offshoot may have taken place from the common stock Passeres, near the Swallows, as would in time have produced our typically modern Swifts. I can picture how these forms at first may have had some change in their environment as demanded an increase of the power of flight. This would demand an increase of the power of the muscles involved therein, and finally we would find just such changes in the bones to which these muscles are attached as we in reality do in existing Cypseli. So that the enlarged pectorals, the deep keel to the sternum and its unnotched xiphoidal extremity, the short humerus of the arm, with its conspicuous processes, are all examples of *physiological adaptations of structure*. So there may have come down to us an entirely different group of birds, as the Hummers, of very different origin, which group may have had the same factor thrown into its environment, somewhere in time, that demanded an increase in the power of flight, and as a consequence we find a similar modification of the parts involved. But when we come to critically examine and compare the modified parts we may find, as we do in the case of the Hummers and Swifts, that although the *same end* has been very prettily arrived at by the changes in the structures, yet at the same time quite *different forms* of the several and corresponding parts had been the result of it all. The first comparison, with the views of pointing out the relationships of such, and existing groups, wherein the fundamental characters are masked by such deceptive similarities, constitute some of the most difficult problems of systematic zoölogy. In the comparisons, it is by no means necessary to eliminate them, but simply we must be guided in our conclusions by what the *sum of all* the morphological characters of the forms under comparison go to show.

It is really no valid reason that we should retain in the same *order*, were vessels so classified, two kinds of them, simply because they might both happen to possess "deep keels" and "short shafts" connecting their wheels with their motive powers, for one of these vessels might be driven by steam and the other by some other force, notwithstanding the fact that one might show an additional blade or two in either of its wheels (wings) or perhaps have a different style of rudder (tail), and yet the fundamenta differences be very great and justify us in widely separating them in any scheme of classification.

In conclusion I must express my satisfaction at finding one who has perhaps thus far devoted his best energies in avian taxonomy to the con-

sideration of external characters and obscure points in synonomy, as Dr. Stejneger has so ably done for us, expressing himself as he does in the criticism of my memoir by saying, "A natural system cannot be based upon one single set of characters; all will have to be carefully considered, whether they are external or internal, before we can hope to understand the true relationship of the different groups" (p. 406). This is precisely, indeed the words are quite the echo of, what I have taught, and my sentiments for a number of years past, as the reader may see by referring to the leading paragraphs in my "Osteology of the Cathartidæ," published in 1883 in Hayden's Twelfth Annual, by the Department of the Interior.

Very respectfully,

Ft. Wingate, New Mexico,
4th August, 1886.

R. W. Shufeldt.

Erratum.—In Dr. Shufeldt's letter in the July 'Auk,' p. 414, for "nine," in the first line of the letter, read mine.—Edd.

NOTES AND NEWS.

The next meeting of the American Ornithologist's Union will be held in Washington, Tuesday, November 16, and following days. A very interesting meeting is anticipated, and a much larger attendance than usual of both Active and Associate Members is expected. The meeting will be chiefly occupied with the reading and discussion of scientific papers. There will be in addition the usual reports of committees.

Dr. F. W. Langdon, of Cincinnati, has in preparation a work on 'Ohio Valley Birds,' which he hopes to have soon ready for the press. It will be devoted to the birds of the region drained by the Ohio River and its tributaries. Besides some matter relating to ornithology in general, it will include descriptions and life histories of Ohio Valley birds.

A 'Manual of North American Birds,' by Mr. Robert Ridgway, is announced as in press, to be published by J. B. Lippincott and Co., of Philadelphia. The work will be abundantly illustrated and, it is needless to say, most carefully and thoroughly prepared.

Dr. Leonhard Stejneger announces his intention (Proc. U. S. Nat. Mus., 1886, p. 99) "to write a comprehensive and reliable guide to Japanese ornithology, with ample descriptions of all the known forms from original Japanese specimens." Finding his material for the work still incomplete he earnestly requests assistance in gathering it, in order to enable him to satisfactorily fulfil the task he has undertaken. The work will be based primarily on the Blakiston and Jouy collections of Japanese

birds in the National Museum, which is desirous of obtaining by exchange specimens necessary for the elucidation of the Japanese Avian fauna. Specimens loaned to Dr. Stejneger in aid of his work will be returned as soon as possible without expense to the owner.

The Division of Economic Ornithology and Mammology of the U. S. Department of Agriculture, Dr. C. Hart Merriam, Chief of the Division, has issued four circulars in reference to the work of the Division. No. 1 is in relation to the 'Food-Habits of Birds'; No. 2 is 'On the English Sparrow,' and is accompanied with a 'Schedule' of inquiries; No. 3 is 'On the Economic Relations of Mammals'; No. 4 is 'Instructions for the collection of Stomachs,' of both birds and Mammals. Dr. Merriam's chief scientific assistants are Dr. A. K. Fisher and Prof. Walter B. Barrows, the latter recently instructor in Natural History at the Wesleyan University, Middletown, Conn.

The A. O. U. Committee on the Protection of North American Birds has resumed its meetings, and proposes to issue soon a short Bulletin on the subject of its work, with special reference to legislation in behalf of the birds.

Professor Eugen von Boeck, Director of the Central School of Bolivia, member of the International Ornithological Committee, and a naturalist who for thirty years has devoted much time to the study of the natural history of South America, died on the 30th of January, 1886, in Cochabamba, after a single day's illness from a choleraic attack. His researches were mainly ornithological, and as early as 1855 he published in 'Naumannia' a paper on the birds of Bolivia. His last contributions were papers on the birds of the valley of Cochabamba, published in the 'Mittheilungen des ornithologische Vereins in Wien' in 1884. At the time of his death he was engaged upon a translation of Taczanowski's 'Ornithologie du Pérou.' He was also the author of numerous briefer ornithological communications. Notwithstanding many other pressing engagements, he devoted much time for many years to the study of South American ornithology.

SUPPLEMENT.

DESCRIPTIONS OF THIRTEEN NEW SPECIES OF BIRDS FROM THE ISLAND OF GRAND CAYMAN, WEST INDIES.

BY CHARLES B. CORY.

Certhiola sharpei, sp. nov.

SP. CHAR.—Throat ash gray, darker than in *C. caboti*, or *bahamensis* but much lighter than *flaveola*; underparts yellow, brightest upon the breast and dullest with a slight olive tinge on the belly and flanks; top of the head and stripe through the eye dull black; superciliary stripe white; back dull black showing an ashy tinge; rump yellow; quills dark brown, edged with white; carpus edged with bright yellow; tail tipped with white, heaviest on the outer feathers; bill and feet dull black.

Length, 4.10; wing, 2.45; tail, 1.80; tarsus, .80; bill, .52.

HABITAT. Island of Grand Cayman, West Indies.

I take much pleasure in dedicating this species to Mr. R. Bowdler Sharpe, of London, England.

Dendroica vitellina, sp. nov.

SP. CHAR.—Somewhat resembling *D. discolor* in general appearance but larger and having the entire underparts bright yellow with no black streaks on the sides but showing traces of olive on the sides and flanks. Upper parts dull green, pale yellowish green on the rump; quills dark brown edged with pale yellowish green on outer webs; inner webs edged with dull white; a distinct wing-band of yellow; tail-feathers edged with yellowish-green on the outer webs; two outer feathers heavily marked with white on the terminal portion of the inner webs, narrowly showing on the third feather; a superciliary line of bright yellow nearly if not quite reaching the occiput; bill horn color; feet dull black.

Length, 4.30; wing, 2.50; tail, 2.10; tarsus, .70; bill, .50.

HABITAT. Island of Grand Cayman, West Indies.

Chrysotis caymanensis, sp. nov.

SP. CHAR.—Resembles *C. leucocephalus*, but differs from that species greatly in the markings of the throat and head; forehead dull yellowish white, not reaching the eye; feathers of the head bluish green, tipped and edged with dull black; cheeks bright crimson red, the feathers mixed

with green in some specimens; throat pale red, the feathers broadly edged with yellow; underparts bluish green, marked with dull red on the sides and belly; the feathers of the breast and belly edged with dull black; quills heavily edged with blue on the outer webs, inner webs dark brown; tail yellowish green, the outer web of outer feather pale blue, the basal portion of inner webs heavily marked with dark red.

Length, 11; wing, 8; tail, 5; tarsus, .70; bill, 1.05.

HABITAT. Island of Grand Cayman, West Indies.

Colaptes gundlachi, sp. nov.

SP. CHAR.—Resembles *Colaptes chrysocaulosus* but is smaller, the yellow of the quills and tail much brighter; under surface of outer tail feathers distinctly banded; feathers of the rump white, heavily blotched with black; shafts of the quills and tail very bright yellow; first primary much longer than in the Cuban species.

Length, 8.90; wing, 5.20; tail, 4; tarsus, .85; bill, 1.10.

HABITAT. Island of Grand Cayman, West Indies.

I have dedicated this species to Dr. John Gundlach, the well known ornithologist, of Ingenio Fermina, Cuba.

Engyptila collaris, sp. nov.

SP. CHAR.—Forehead dull white; top of the head dark gray, showing a metallic tinge of purple on the nape; a cape of metallic purple showing greenish red reflections where it joins the back; back dark brownish olive; throat dull white; breast dull vinaceous, shading into dull white on the belly; sides dull red brown; under wing-coverts and under surface of wing rufus brown; primaries brown, having the inner webs heavily marked with rufus brown; tail slaty brown, two or three outer feathers tipped with white; feet red; bill black; iris dull white.

Length, 9.50; wing, 5.75; tail, 3.50; tarsus, 1.25; bill, .75.

HABITAT. Grand Cayman, West Indies.

Zenaida spadicea, sp. nov.

SP. CHAR.—General upper plumage dark olive brown, rufous brown on the forehead and showing a tinge of very dull purple on the crown, apparently wanting in some specimens; a sub-auricular spot of dark metallic blue; sides of the neck and nape rich metallic purple; chin pale buff, shading into rich rufous chestnut on the throat and breast; belly brown, showing a slight vinaceous tinge; upper surface of tail brown, the feathers showing a sub-terminal band of black, and all the feathers except the central ones tipped with gray; primaries dark brown, almost black, faintly tipped with dull white; the secondaries broadly tipped with white; under wing-coverts gray; bill black; feet red.

Length, 9.60; wing, 6; tail, 3.75; tarsus, .75; bill, 50.

HABITAT. Grand Cayman, West Indies.

Centurus caymanensis, sp. nov.

SP. CHAR. *Male:*—Forehead and sides of the head white; crown and nape bright crimson red; a tinge of red at the nostrils; throat dull white, shading into brownish white on the breast and belly; a patch of crimson red at the vent; back banded with dull white and black; rump dull white, marked irregularly with black; quills dark brown, heavily blotched with white on the basal portion of the inner webs; secondaries and some of the inner primaries heavily marked with white; tail brownish black, faintly tipped with tawny brown, the outer pair and two central feathers blotched with dull white; bill and feet black.

The female is similar to the male, but lacks the red crown, having only a nuchal patch of that color.

Length, 8.60; wing, 5; tail, 4; tarsus, .75; bill, 1.50.

This species lacks the black superciliary mark which is found in both the Cuban and Bahama species.

HABITAT. Island of Grand Cayman, West Indies.

Mimocichla ravida, sp. nov.

SP. CHAR.—Bill large; general plumage dull ashy or brownish plumbeous; no stripes on the throat which is the same color as the breast, a patch of dull white on the vent and under tail-coverts; three outer tail-feathers tipped with white on the inner webs; bill, bare space around the eye, and legs orange red; iris dull red.

Length, 9.50; wing, 5.25; tail, 4.40; tarsus, 1.50; bill, 90.

HABITAT. Island of Grand Cayman, West Indies.

Quiscalus caymanensis, sp. nov.

SP. CHAR.—General plumage purplish black showing a greenish gloss on the back and rump; wing-feathers showing a faint greenish gloss; quills and tail black; bill and feet black; iris yellow.

Length, 9.75; wing, 5.30; tail, 4.50; tarsus, 1.25; bill, 1.10.

HABITAT. Island of Grand Cayman, West Indies.

Spindalis salvini, sp. nov.

SP. CHAR.—Top of the head and cheeks black; a superciliary and malar stripe of white; a patch of yellowish orange on the upper throat, separated from the white malar stripe by a line of black which reaches the breast; chin dull white; lower throat, and breast chestnut; back dark olive, separated from the black of the head by a chestnut collar; lower back yellowish; a patch of chestnut on the carpus; rump brownish orange; belly and under tail-coverts dull white; tail black, the two outer feathers heavily marked with white; the third feather tipped with white on the inner web, the two central feathers narrowly edged with white on

the inner webs; bill horn color; feet slate brown. General appearance of *Spindalis pretrii* but having the bill heavier and throat marking unlike those of that species, besides other minor differences.

Length, 5.50; wing, 3.35; tail, 2.75; tarsus, .70; bill, .50.

HABITAT. Grand Cayman, West Indies.

I have dedicated this species to Mr. Osbert Salvin, of London, England.

Vireo alleni, sp. nov.

SP. CHAR.—Above dull olive, showing a dull yellow tinge on the forehead; a stripe of yellow from the upper mandible to the eye, the yellow showing on the upper and lower eyelids; entire under surface dull yellow, tinged with olive on the flanks and sides; two distinct yellowish white wing-bands; quills dark brown, most of the feathers edged with yellowish green on the outer webs. Tail brown, showing faint olive edgings on the outer webs; bill horn color; legs dark brown or slaty brown.

Length, 4.10; wing, 2.30; tail, 1.85; tarsus, .75; bill, .45.

HABITAT. Grand Cayman, West Indies. This interesting species is dedicated to my friend Dr. J. A. Allen, of the American Museum of Natural History, New York.

Myiarchus denigratus, sp. nov.

SP. CHAR.—Top of the head dark blackish brown; back dull olive brown; sides of the head, cheeks, and ear-coverts dark brown, slightly lighter than the crown; throat and breast ash gray, shading into dull yellowish white on the belly and crissum; quill, very dark brown, some of the feathers edged with very pale rufous; tail-feathers dark brown edged with pale rufous on the inner webs; bill and feet black.

Length, 6.25; wing, 3.15; tail, 3.00; tarsus, .80; bill, .60.

HABITAT. Grand Cayman, West Indies.

This is a very dark species, easily distinguished from any other West Indian form.

Icterus bairdi, sp. nov.

SP. CHAR.—Front of face and throat black; underparts bright yellow; back dull yellow, showing a faint tinge of olive on the upper back; tail and wings black; lesser wing-coverts bright yellow, greater secondary wing-coverts pure white, forming a broad white wing-patch, some of the inner primaries delicately edged with white, showing more clearly on the inner secondaries; bill and feet black.

Length, 7.25; wing, 3.75; tail, 3; tarsus, .85; bill, .85.

HABITAT.—Grand Cayman, West Indies.

The birds before me are all in poor plumage, being evidently moulting, but the bright yellow coloration alone is sufficient to separate it from *I. leucopteryx* of Jamaica, which is its nearest ally.

This species is named in compliment to Prof. Spencer F. Baird, of Washington, D. C.

A LIST OF THE BIRDS COLLECTED IN THE ISLAND OF GRAND CAYMAN, WEST INDIES, BY W. B. RICHARDSON, DURING THE SUMMER OF 1886.

BY CHARLES B. CORY.

DURING the past summer Mr. W. B. Richardson has been collecting specimens of natural history in the small islands known as Grand and Little Cayman, which are situated south of Cuba, and some hundred and thirty miles northwest of Jamaica.

The collection of birds which was forwarded to me proved to be very rich in novelties, containing no less than thirteen species which I believe to be new and several others which vary slightly from known West Indian forms.

Mr. Richardson writes me that the island is low, and although much of it is well wooded, birds are comparatively scarce.

The following is a list of the species contained in the collection.

Mimocichla ravida, *nobis.*
Mimus orpheus? (*Linn.*).
Polioptila cærulea (*Linn.*).
Mniotilta varia (*Linn.*).
Dendroica cærulea *Wils.*
Dendroica dominica (*Linn.*).
Dendroica petechia gundlachi (*Baird*).
Dendroica vitellina, *nobis.*
Seiurus motacilla (*Vieill.*).
Certhiola sharpei, *nobis.*
Vireo alleni, *nobis.*
Spindalis salvini. *nobis.*
Melopyrrha nigra (*Linn.*).

Euetheia olivacea (*Gmel.*).
Icterus bairdi, *nobis.*
Quiscalus caymanensis, *nobis.*
Elainea martinica? (*Linn.*).
Pitangus caudifasciatus (*D'Orb.*).
Myiarchus denigratus, *nobis.*
Tyrannus dominicensis (*Gmel.*).
Crotophaga ani *Linn.*
Coccyzus minor (*Gmel.*).
Centurus caymanensis, *nobis.*
Colaptes gundlachi, *nobis.*
Chrysotis caymanensis, *nobis.*
Strix flammea furcata (*Temm.*).
Engyptila collaris, *nobis.*
Zenaida spadicea, *nobis.*
Columbigallina passerina (*Linn.*).
Ægialitis semipalmata *Bp.*
Arenaria interpres (*Linn.*).
Actitis macularia (*Linn.*).
Tringa maculata *Vieill.*
Tringa minutilla *Vieill.*
Ereunetes pusillus (*Linn.*).
Totanus flavipes (*Gmel.*).
Gallinula galeata (*Licht.*).
Nycticorax violaceus (*Linn.*).
Ardea tricolor ruficollis (*Gosse*).
Ardea virescens *Linn.*

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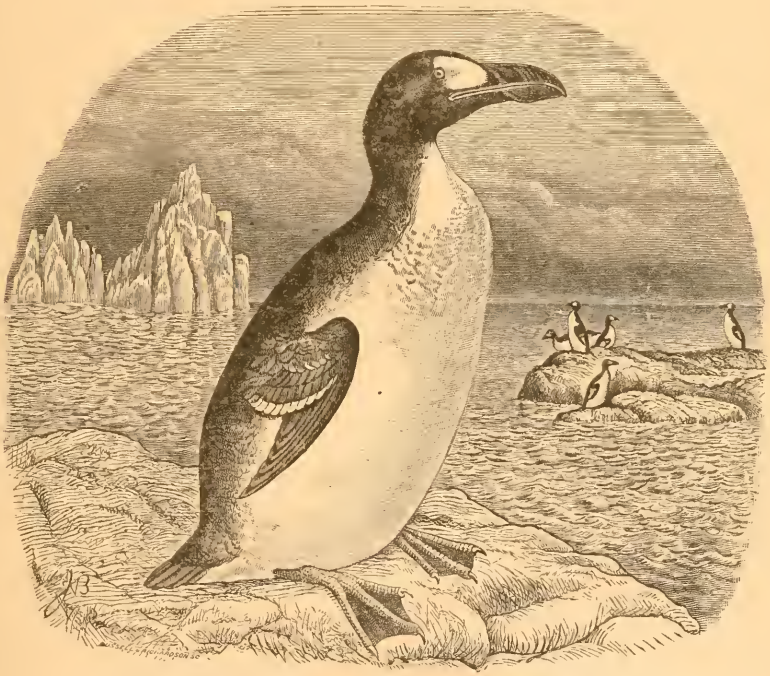
New Series, Vol III

The Auk

A Quarterly Journal of Ornithology

Vol. III —JANUARY, 1886— No. 1



PUBLISHED FOR

The American Ornithologists' Union

NEW YORK
L. S. FOSTER

Smithsonian Institution,
SEP 12 1904
National Museum.

Entered at the New York Post Office as Second Class Matter.

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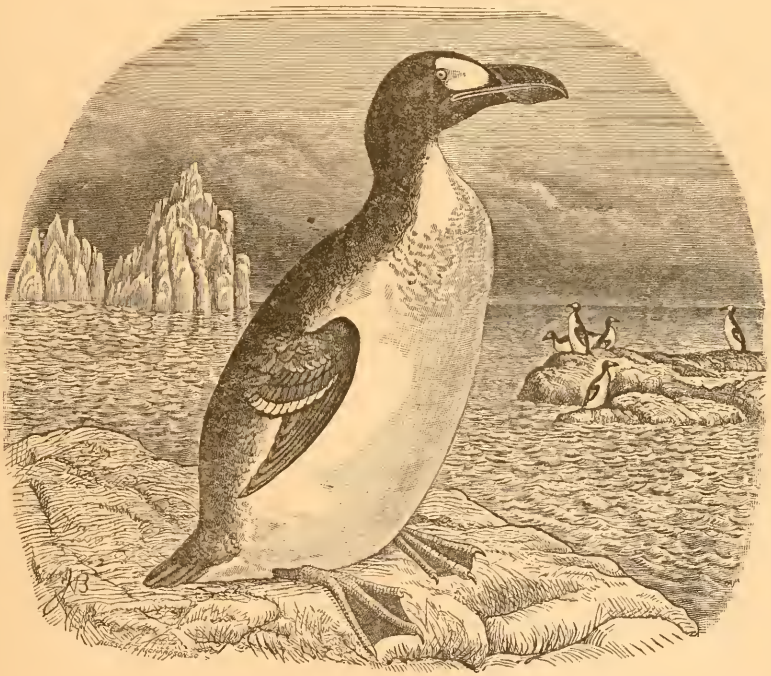
A Quarterly Journal of Ornithology

Vol. III —APRIL, 1886— No. 2



PUBLISHED FOR

The American Ornithologists' Union

Smithsonian Institution,
SEP 12 1904
National Museum.

NEW YORK
L. S. FOSTER

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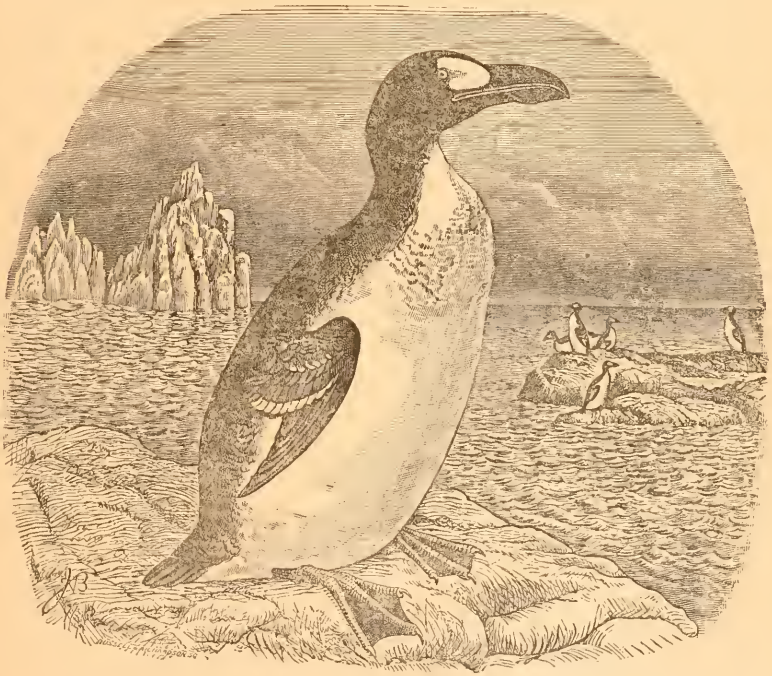

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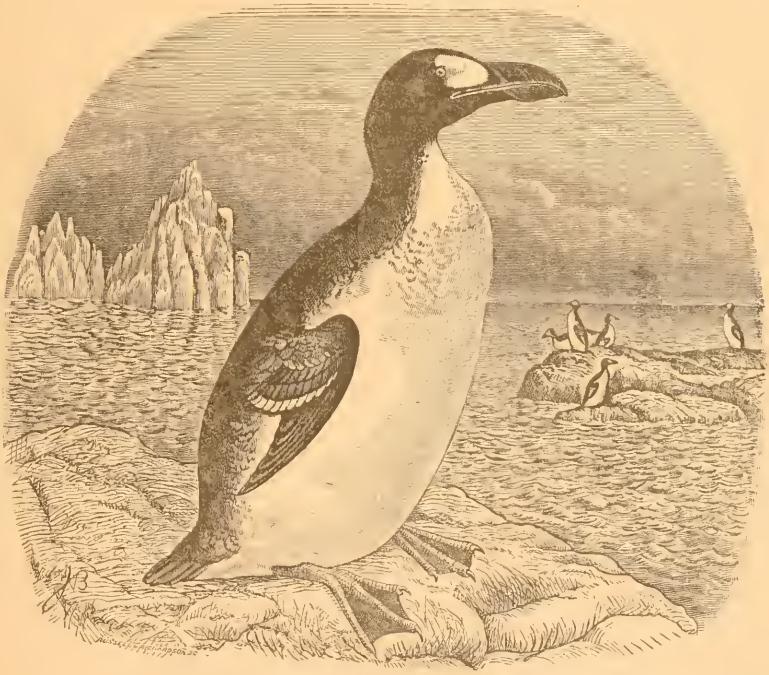

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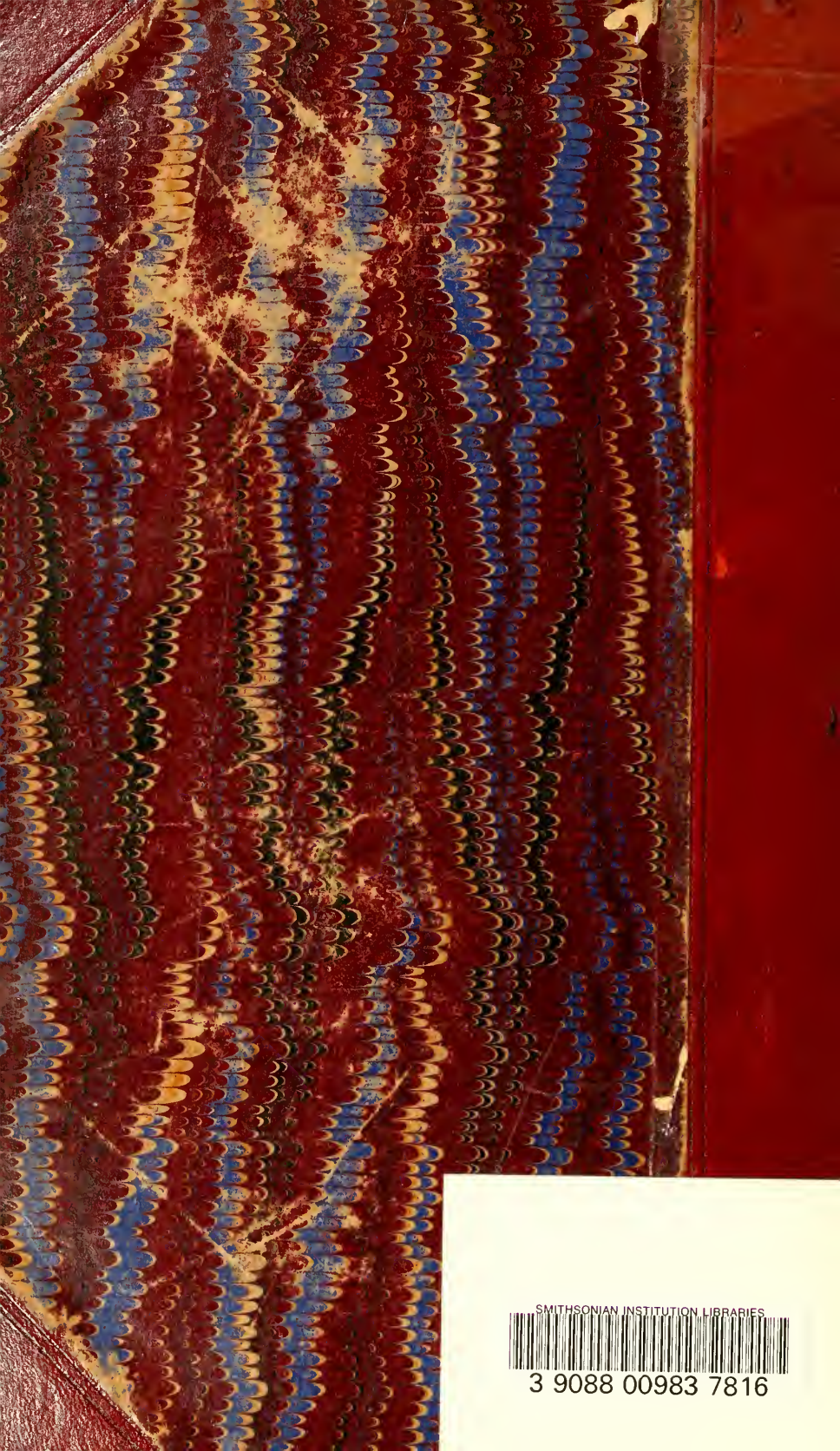
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